

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

FUNDAMENTAL DIMENSIONS OF FINANCIAL CONDITION IN THE FEDERAL GOVERNMENT

by

Mark S. Murphy

June 2001

Thesis Advisor:
Associate Advisor:

O. Douglas Moses
Kenneth J. Euske

Approved for public release; distribution is unlimited.

20010814 010

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 2001	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE: Fundamental Dimensions of Financial Condition in the Federal Government			5. FUNDING NUMBERS	
6. AUTHOR(S) Mark S. Murphy				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) Historically, financial reports of federal agencies focused on budgetary accounting, the reporting of obligations and expenditures of appropriated funds. The Chief Financial Officers (CFO) Act of 1990 and subsequent legislation significantly changed this pattern by requiring the 24 largest government agencies to reorganize their financial staffs and establish Chief Financial Officers to reform accounting procedures and reporting. To achieve the goals of the financial reform acts, it must be determined if executive agencies are improving financial management. This determination may be facilitated by systematic financial analysis of agency operations using information provided in agency financial reports. The objective of this thesis is to examine financial ratios calculated from federal financial statement information in order to identify fundamental dimensions of financial condition within the federal government and the ratios representative of those dimensions. Statistical analysis of financial ratios using factor analysis was used to determine the fundamental dimensions of financial condition. The results indicate that nine fundamental dimensions of financial condition underlying the numerous financial ratios exist within the federal government. The dimensions are comprehensive in that they reflect the variance existing in the larger set of financial ratios. Individual ratios can be selected to represent or measure each dimension. These dimensions and ratios provide an approach to conducting a financial analysis.				
14. SUBJECT TERMS Federal Government, Financial Ratios of Financial Condition, Factor Analysis, Indicators of Federal Agency Financial/Economic Health			15. NUMBER OF PAGES 126	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**FUNDAMENTAL DIMENSIONS OF FINANCIAL CONDITION IN THE
FEDERAL GOVERNMENT**

Mark S. Murphy
Lieutenant Commander, United States Navy
B.S., High Point University, 1988


Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

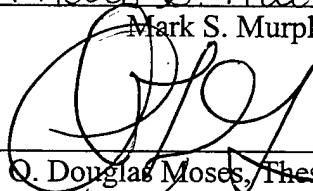
from the

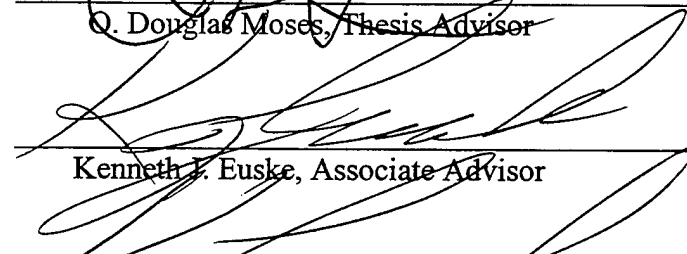
**NAVAL POSTGRADUATE SCHOOL
June 2001**

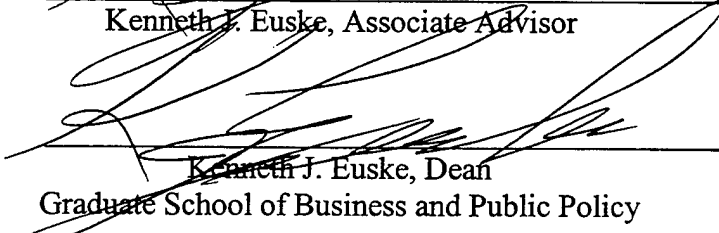
Author:


Mark S. Murphy

Approved by:


O. Douglas Moses, Thesis Advisor


Kenneth J. Euske, Associate Advisor


Kenneth J. Euske, Dean
Graduate School of Business and Public Policy

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Historically, financial reports of federal agencies focused on budgetary accounting, the reporting of obligations and expenditures of appropriated funds. The Chief Financial Officers (CFO) Act of 1990 and subsequent legislation significantly changed this pattern by requiring the 24 largest government agencies to reorganize their financial staffs and establish Chief Financial Officers to reform accounting procedures and reporting. To achieve the goals of the financial reform acts, it must be determined if executive agencies are improving financial management. This determination may be facilitated by systematic financial analysis of agency operations using information provided in agency financial reports. The objective of this thesis is to examine financial ratios calculated from federal financial statement information in order to identify fundamental dimensions of financial condition within the federal government and the ratios representative of those dimensions. Statistical analysis of financial ratios using factor analysis was used to determine the fundamental dimensions of financial condition. The results indicate that nine fundamental dimensions of financial condition underlying the numerous financial ratios exist within the federal government. The dimensions are comprehensive in that they reflect the variance existing in the larger set of financial ratios. Individual ratios can be selected to represent or measure each dimension. These dimensions and ratios provide an approach to conducting a financial analysis.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	BACKGROUND	1
B.	SCOPE AND OBJECTIVE	2
C.	METHODOLOGY	3
D.	ORGANIZATION	4
E.	BENEFITS OF THE STUDY	5
II.	FEDERAL FINANCIAL MANAGEMENT LEGISLATION	7
A.	PRE-CFO ACT OPERATING ENVIRONMENT AND LEGISLATION.....	7
1.	Constitution of the United States.....	7
2.	Anti-Deficiency Act of 1870.....	7
3.	Budget and Accounting Act of 1921	8
4.	Budget and Accounting Procedures Act of 1950.....	9
5.	Supplemental Appropriation Act of 1955.....	10
6.	Public Law 84-863, 1956.....	11
7.	Congressional Budget and Impoundment Control Act of 1974.....	11
8.	Federal Managers Financial Integrity Act of 1982.....	12
B.	THE CHIEF FINANCIAL OFFICERS ACT OF 1990	12
C.	THE GOVERNMENT PERFORMANCE AND RESULTS ACT OF 1993.....	15
D.	THE GOVERNMENT MANAGEMENT REFORM ACT OF 1994.....	16
E.	THE FEDERAL FINANCIAL MANAGEMENT IMPROVEMENT ACT OF 1996.....	16
III.	FEDERAL FINANCIAL STATEMENTS	19
A.	FEDERAL ACCOUNTING STANDARDS ADVISORY BOARD	19
B.	STATEMENT OF FEDERAL FINANCIAL ACCOUNTING CONCEPTS NUMBER 1	20
1.	Users of Federal Financial Statements.....	20
2.	Needs of Users of Financial Reports.....	21
3.	Objectives of Federal Financial Reporting.....	22
a.	<i>Budgetary Integrity</i>	23
b.	<i>Operating Performance</i>	23
c.	<i>Stewardship</i>	23
d.	<i>Systems And Controls</i>	23
C.	STATEMENT OF FEDERAL FINANCIAL ACCOUNTING CONCEPTS NUMBER 2	24
1.	Criteria for Identifying Reporting Entities	24
2.	Financial Reporting for an Organizational Entity	25
D.	OFFICE OF MANAGEMENT AND BUDGET BULLETIN 97-01	25
1.	Balance Sheet.....	26

2.	Statement of Net Cost	27
3.	Statement of Changes in Net Position	29
4.	Statement of Budgetary Resources.....	30
5.	Statement of Financing.....	32
6.	Statement of Custodial Activity	33
IV.	RATIOS AND FINANCIAL RATIO ANALYSIS	37
A.	RATIOS	37
B.	A BRIEF HISTORY OF RATIOS	38
1.	Ratios.....	38
2.	Business Ratios.....	38
C.	USEFULNESS OF FINANCIAL RATIOS	39
D.	FINANCIAL STATEMENT AND FINANCIAL RATIO ANALYSIS	40
E.	LIMITATIONS OF FINANCIAL RATIOS IN FINANCIAL STATEMENT ANALYSIS	41
V.	FINANCIAL RATIO CLASSIFICATION FRAMEWORKS	45
A.	PAST STUDIES	45
B.	TAXONOMIES IN GOVERNMENT FINANCIAL RATIOS.....	47
VI.	FINANCIAL RATIOS FROM FEDERAL FINANCIAL REPORTS.....	51
A.	OBJECTIVE AND PURPOSE OF FINANCIAL RATIO FRAMEWORKS.....	51
1.	Objective of Ratio Frameworks.....	51
2.	Purpose of the Ratio Framework	52
B.	BRADY'S FRAMEWORK FOR FEDERAL FINANCIAL STATEMENTS	52
1.	Other Sources of Funds to Budgetary Resources	56
2.	Ratios Using Total Outlays	56
3.	Obligations Incurred to Budget Authority	57
4.	Brady's Utilization Ratio.....	57
5.	Reliance on Other Sources of Funding Ratio.....	57
6.	Operating Efficiency Ratio.....	58
7.	Return on Fixed Assets Ratio.....	58
8.	Net Cost of Operations Growth	58
9.	Depreciation Rate.....	58
C.	ADDITIONAL RATIOS TO BE ANALYZED.....	59
3.	Entity Liabilities to Entity Assets Ratio.....	60
4.	Total Liabilities to Net Position Ratio	61
5.	Earned Revenues to Entity Assets	62
6.	Total Cost of Operations to Total Financing Ratio	62
7.	Return on Average Net Position	63
8.	Fixed Assets to Entity Assets.....	63
9.	Inventory to Entity Assets	63
10.	Capital Investment Ratio II (Entity Assets)	64
11.	Entity Assets Maintenance	64
12.	Entity Receivables Management	65

13.	Non-Entity Asset Management.....	65
E.	RATIOS TO BE USED IN DETERMINING WHETHER DIMENSIONS OF FINANCIAL CONDITION EXIST IN THE FEDERAL GOVERNMENT	66
VII.	ANALYSIS OF FEDERAL FINANCIAL RATIOS.....	69
A.	DATA AND TIME PERIOD	69
B.	SELECTING RATIOS.....	69
C.	DATA TRANSFORMATION	70
D.	FACTOR ANALYSIS	70
E.	ANALYSIS AND FINDINGS	72
1.	What are the Fundamental Dimensions of Financial Condition in the Federal Government?	75
2.	How Many Ratios Should be Considered when Conducting an Analysis?	83
3.	Which Ratios Should be Considered?	84
4.	How are Financial Ratios Interrelated?	84
5.	Which Ratios are Redundant?	85
VIII.	CONCLUSIONS	87
	APPENDIX A. FEDERAL FINANCIAL STATEMENT DATA.....	89
	APPENDIX B. RATIOS CALCULATED FROM FEDERAL FINANCIAL STATEMENTS	93
	LIST OF REFERENCES	101
	INITIAL DISTRIBUTION LIST	105

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FIGURES

Figure 3.1.	Balance Sheet From [Ref. 14:p. 54].....	28
Figure 3.2.	Statement of Net Cost From [Ref. 14:p. 57].....	29
Figure 3.3.	Statement of Changes in Net Position From [Ref. 14:p. 59].	31
Figure 3.4.	Statement of Budgetary Resources From [Ref. 14:p. 60].....	32
Figure 3.5.	Statement of Financing From [Ref. 14:p. 63].....	34
Figure 3.6.	Statement of Custodial Activities From [Ref. 14:p. 60].....	35
Figure 5.1.	Financial Attributes, Measures and Indicators From [Ref. 33:p. 27].	49
Figure 6.1.	Possible Ratios for Assessing Budgetary Integrity From [Ref. 8:p. 109].....	53
Figure 6.2.	Possible Ratios for Assessing Operating Performance From [Ref. 8:p. 111].	54
Figure 6.3	Possible Ratios for Assessing Stewardship From [Ref. 8:p. 113].	55
Figure 6.4.	Utilization Ratio.....	59
Figure 6.5.	Self-Sufficiency Ratio.....	60
Figure 6.6	Entity Liabilities to Entity Assets.	61
Figure 6.7.	Total Liabilities to Net Position.	61
Figure 6.8.	Earned Revenues to Entity Assets.	62
Figure 6.9.	Total Cost of Operations to Total Financing.	62
Figure 6.10.	Return on Average Net Position.	63
Figure 6.11.	Fixed Assets to Entity Assets.....	63
Figure 6.12.	Inventory to Entity Assets.....	64
Figure 6.13.	Change in PP&E to Entity Assets.....	64
Figure 6.14.	Entity Assets to Appropriations Used.....	65
Figure 6.15.	Entity Receivables Management.....	65
Figure 6.16.	Non-Entity Assets to Total Assets.	65
Figure 6.17.	Ratios to be Used in this Study.	67
Figure 7.1	Ratio Component Abbreviations.....	73
Figure 7.2.	Ratios Most Representative of Fundamental Dimensions of Financial Condition in the Federal Government.....	83

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 7.1.	Rotated Component Matrix.....	74
Table 7.2	Communality Estimates.	82

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

The author wants to thank Professor O. Douglas Moses for his guidance during the work in performing this study. Additionally, thanks to LCDR Boris Belchoff for assisting in the data collection and development of the ratio framework used, and to Mr. Warren Pfeiffer for assisting with collection of the federal financial statements used in this thesis.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. BACKGROUND

Historically, the preparation of financial statements by Federal agencies has served the sole purpose of reporting obligations and expenditures of appropriated funds. The Chief Financial Officers (CFO) Act of 1990 and subsequent legislation significantly changed this traditional pattern by requiring the 24 largest government agencies, which are responsible for 99% of federal spending, to reorganize their financial management staffs and establish Chief Financial Officers who would work to reform accounting procedures and reporting. One of the main aspects of the CFO Act is the requirement for standardized financial statements to be submitted by government agencies. The Government Performance and Results Act (GPRA) of 1993, the Government Management Reform Act (GMRA) of 1994, and the Federal Financial Management Improvement Act (FFMIA) of 1996 continued the process of implementing reform to enhance the financial management practices of government agencies. Further, the FFMIA was designed as a link between the other three legislative acts. The overall objective is to increase the quality of the government by improving federal accounting practices and enhancing the ability of the government to provide reliable, useful financial information.

To achieve the goals of the various financial reform acts, it must be determined if the financial statements submitted by the various executive agencies indicate improvement within their organizations and throughout government. This determination will be facilitated by the identification of the fundamental dimensions of financial

condition within the federal government and the ratios most representative of those dimensions. The concern of this thesis is to find common ground upon which to measure and compare government agencies, over time and against other agencies, with regard to financial health, stability and capability. With common dimensions of financial condition and specific representative ratios, governmental financial reporting will serve not only the purpose of individual agency accounting and comparison of that agency over time, but also provide the capability of comparing agencies of like operation.

The difficulty confronting an analysis, single agency or comparative, of federal financial statements is the varied operations conducted by the agencies of the government and how they account for these operations. Given what we know today, it may not be possible to measure certain performance aspects for some programs and services. [Ref. 1:p. 19] Judgment will be required in selecting meaningful indicators and tailoring them to fit specific programs, services, activities and functions. [Ref. 1:p. 19] No consistent framework was found in the literature for the identification, selection and interpretation of financial ratios when conducting a financial analysis of government agencies.

B. SCOPE AND OBJECTIVE

The central objective of this thesis is to identify the fundamental dimensions of financial condition within the federal government and identify specific financial ratios that best reflect these dimensions.

The following is the scope of work this thesis covers:

- A review of significant legislation in the Government accounting and financial statement process.
- A review of the history of financial ratios and financial ratio analysis.
- The collection and review of the financial statements submitted from the population of federal agencies required to do so.

- The formulation of financial ratios based on the financial statement data.
- A statistical analysis of the ratios derived using factor analysis to empirically isolate common dimensions or “factors” underlying the set of ratios.

The analysis is not intended to draw conclusions regarding the financial health of individual government departments or agencies, but rather to explore the possibility that a distinct set of financial ratios can advance understanding of the dimensions of financial condition across the spectrum of government financial reporting.

Specifically, the following primary research question will be addressed: “What are the fundamental dimensions of financial condition in the federal government?”

Additionally, secondary research questions to be addressed are:

- Are there common ratios of financial condition for federal agencies?
- How many ratios should be considered when conducting an analysis?
- Which ratios should be considered?
- How are financial ratios interrelated?
- Which ratios are redundant?

C. METHODOLOGY

The methodology used for this thesis will consist of three phases. These are literature review, data collection, and data analysis.

The review phase will familiarize the reader with the legislative background of government financial reporting, the history and background of financial ratios and ratio analysis, financial ratio frameworks developed through prior research and government studies, and the concept of dimensions of financial condition.

The data collection phase will obtain the data necessary to perform a sufficient analysis and answer the above research questions. This collection phase will consist of the following steps:

- Gathering financial statements from the 24 agencies required to submit yearly financial statements for fiscal years 1998, 1999 and 2000. The limitation in years available for analysis is due to defining the point in time in which all 24 agencies complied with submission requirements, both in content and completion.
- Formulating financial ratios from data collected from financial statements using frame worked ratios developed in prior research and Government Accounting Office (GAO) studies
- Filtering out data determined to be unusable

The analysis phase will be conducted through statistical analysis of the financial ratios using factor analysis to determine the fundamental dimensions of financial condition for the given years of data. The use of factor analysis techniques will enable the examination of the ratio data to determine whether an underlying pattern of relationship exists. If so, the research will further attempt to “rearrange” or “reduce” the ratio data to a smaller set of factors or components that can be used as source variables accounting for the observed relationships within the larger field of data. This phase will result in conclusions regarding the primary research question.

D. ORGANIZATION

This thesis will be organized into eight chapters. Following this introductory information and background, Chapter II will examine the significant legislation pertaining to financial reporting within the federal government. The focus of this chapter will be on describing the pre-CFO Act environment through past legislative acts and discussing in depth the changes in accounting and reporting requirements that have been enacted over the past eleven years. Chapter III will introduce the reader to federal financial statements. A brief discussion of the users and objectives of federal financial statements will be followed by examples of the primary statements required of federal agencies. Chapter IV will outline the history of ratios and the foundations of financial ratio analysis, including the usefulness and limitations of ratios in financial analysis.

Chapter V examines completed studies conducted to discover the fundamental dimensions of financial management in the corporate world and discusses research in prior theses and government agencies. Chapter VI will describe the ratios to be used in the analysis and the categories of these selected ratios. Chapter VII will introduce the technique of factor analysis, discuss the data to be analyzed, display the results of the statistical analysis, and respond to the primary and secondary research questions by concluding whether fundamental dimensions of financial condition exist within the Federal Government and identify the representative ratios correlated to the dimensions. Chapter VIII will summarize the findings.

E. BENEFITS OF THE STUDY

There are two primary benefits expected from the study: First, the identification of the basic financial dimensions of the federal government will result in a general framework for understanding government financial condition and organizing a financial analysis. Second, the identification of specific ratios that "best" represent particular aspects of financial condition will provide an approach for selecting ratios to be included in an analysis. The resulting framework will provide a guide for selecting a small set of ratios that, collectively, are necessary and sufficient for a comprehensive financial analysis.

THIS PAGE INTENTIONALLY LEFT BLANK

II. FEDERAL FINANCIAL MANAGEMENT LEGISLATION

Since the founding of the United States of America, several laws have been enacted to prescribe the manner in which federal departments and agencies receive, account for, spend, and report on the budget authority granted them and the status of federally appropriated monies. Recent legislation has additionally prescribed the manner in which federal departments and agencies will report their financial condition and the results of operation. This chapter will discuss major legislative milestones in federal financial management.

A. PRE-CFO ACT OPERATING ENVIRONMENT AND LEGISLATION

1. Constitution of the United States

The financial powers of the United States (U.S.) Government are stated largely in Article I of the Constitution. [Ref 2:Sec. 4.2] The following clauses lay out the basic legislation with regard to revenues and expenditures of the federal government: "The Congress shall have the power to lay and collect taxes, duties, imposts, and excises, to pay the debt and provide for the common defense and general welfare of the United States;" [Ref 3:Art. I, Sec VIII, Clause 1] "To borrow money on the credit of the United States;" [Ref. 3:Art I, Sec VIII, Clause 2] "No money shall be drawn from the Treasury, but in consequence of appropriations made by law; and a regular Statement of Account of the Receipts and Expenditures of all public Money shall be published from time to time." [Ref. 3:Art I, Sec IX, Clause 7]

2. Anti-Deficiency Act of 1870

For nearly a century after the War of Independence no major legislation to improve financial management in government was enacted. Communication between the

executive and legislative branches regarding public finances weakened to the extent that numerous agencies overspent funds appropriated them by Congress. This led to the passing of the Anti-Deficiency Act of 1870. A major provision of this legislation was that administrative controls be put in place to restrict obligations or expenditures against appropriations to the amount apportioned, and to provide agency heads and fiscal officers the capability to fix responsibility for spending in excess of an apportionment. A result of the Act was that each federal agency must have a system of accounts and controls in place that allows the subdivision of apportioned funds with monitoring of spending at the highest practical level within each agency.

3. Budget and Accounting Act of 1921

Although the Anti-Deficiency Act of 1870 made progress in the control of appropriation spending, the Treasury Department, established in 1789, kept the government's fiscal accounts. Accounting within other branches of the government was either nonexistent or existed in memorandum form. [Ref. 4:p. 3] Little interest was manifested in agency records other than those required for cash transactions, and even these seemed to be useful only as evidence that the agency's transactions had conformed to the requirements of appropriations and other authorizations granted by Congress. [Ref. 4:p. 3]

The resulting Congressional action on these deficiencies was the first major legislative step to modernize the accounting and auditing practices of the federal government, the Budget and Accounting Act of 1921. Major provisions of this Act included:

- Directed the President to prepare and submit a budget
- Created the Bureau of the Budget (BOB), later to be renamed the Office of Management and Budget (OMB), to assist the President and executive branch in budget matters
- Established the General Accounting Office (GAO) to report directly to Congress regarding financial integrity, efficiency and economy of government operations
- Provided the Comptroller General the power to prescribe the forms and procedures for administrative control and accounting of appropriated funds
- Appointed a Budget Officer within each department or agency

Although the benefits anticipated from this landmark Act were weakened by disputes amongst the Comptroller General, Treasury Department, and individual agencies, the major provisions of the Budget and Accounting Act of 1921 continue to affect the policies, systems, controls, and practices of federal financial accounting and auditing.

4. Budget and Accounting Procedures Act of 1950

Addressing deficient areas in federal government financial management further, the Budget and Accounting Act of 1950 legislated Congress' objectives of full disclosure of government financial operations; adequate information for operating and budgetary purposes; and more effective control over receipts, expenditures, funds, property and other government assets. [Ref. 5:p. 30] Department and agency heads, in consultation with the BOB were to:

- Achieve consistency in accounting and budget classifications
- Synchronize accounting and budget classifications with organizational structure
- Support budget justifications with data on performance and program costs by organizational units [Ref. 5:p. 29]

Additional requirements were placed on the President as a result of the new law.

To justify annual budget submissions, performance-oriented data was now required, as

well as data and information regarding the functions and activities of government. Additionally, the executive branch was required to reconcile expenditures with congressional appropriations.

The Budget and Accounting Procedures Act of 1950 addressed the majority of financial management areas requiring strengthening, but once again implementation by departments and agencies was not complete. Even Congress chose to ignore the legislation by not enforcing compliance and appropriating funds for systems improvements. Although not fully implemented and adhered to, this Act would address many of the issues that would be used as a basis for the CFO Act 40 years later.

5. Supplemental Appropriation Act of 1955

In order to further address the difficulty of receiving accurate obligation and expenditure data from executives of the federal agencies and departments, Congress passed the Supplemental Appropriation Act of 1955.

From a financial reporting perspective, the act required a year-end accounting, from all reporting entities, of the unliquidated obligations and remaining unobligated appropriations. The report, to be certified by officials appointed by the department or agency head, also constituted the beginning of the year-end unliquidated obligation audit.

Additionally, it established prescribed criteria for determining whether transactions constituted legally binding obligations against the United States, including the eight possible forms of documentary evidence for valid obligations.

6. Public Law 84-863, 1956

An amendment to the Budget and Accounting Act of 1921, this law permitted the President and executive branch to submit budget data on a cost basis vice an obligation, cash or mixed basis. As a result:

- Department accounts were to be kept using accrual accounting
- Financial resources, liabilities, and costs of operation were to be shown in a manner that facilitated the preparation of cost-based budgets
- Property accounting records were to be kept on a monetary basis vice simple physical counts of property [Ref. 5:p. 32]

Again, Congress addressed several issues to enact much needed improvements in federal financial management. Unfortunately, during the following years, Congress permitted departments and agencies to ignore or implement only selected sections of the law. [Ref. 5:p. 32] As with the Budget and Accounting Act of 1950, many of the ideas of this Act were incorporated into the CFO Act of 1990.

7. Congressional Budget and Impoundment Control Act of 1974

In a concerted attempt to assert more control over the financial activities of the executive branch, Congress, having not met its own laws regarding approval of appropriations prior to the start of a new fiscal year, passed the Congressional Budget and Impoundment Control Act of 1974. The highlights of this legislation included:

- The change in the fiscal calendar from beginning on July 1 to October 1, in order to ensure Constitutional requirements regarding the availability of appropriated funds were met
- Creation of the Congressional Budget Office (CBO) to provide Congress with an independent staff of financial professionals to counter the OMB and executive departments and agencies
- Creation of the Congressional Budget Committees and the budget resolution process
- Established procedures for Congressional control regarding the impoundment powers of the executive branch

Although the Congressional Budget Act represents another major milestone in the shaping of the pre-CFO Act financial management environment, it took over 15 years for its general effects to be realized. [Ref 5:p. 33] By the 1990's, with the exception of the timely passing of appropriations and the annual budget resolution, Congress conformed to the rules it had set for itself in this act. [Ref 5:p. 33]

8. Federal Managers Financial Integrity Act of 1982

Reflecting increasing concern over the shortfalls in internal accounting, auditing and administrative controls exercised by the executive agencies, Congress passed the Federal Managers Financial Integrity Act of 1982. This act amended positions of the Accounting and Auditing Act of 1950 and directed agencies to adhere to the standards set forth by the Comptroller General. This law required department and agency heads to provide Congress with the assurance that:

- Obligations and costs are in compliance with the law
- Funds, property and assets are safeguarded from fraud, waste, and abuse
- Revenues and expenditures applicable to department and agency operations are accounted for properly and in a manner permitting the preparation of reliable financial statements and reports [Ref. 5:p. 34]

Under this Act, the OMB would prescribe standards and procedures and evaluate accounting and internal administrative controls of the executive branch for adequacy. An annual statement regarding the status of compliance with prescribed standards and any significant weaknesses was to be submitted by agencies and departments to Congress and the President.

B. THE CHIEF FINANCIAL OFFICERS ACT OF 1990

As seen in the preceding sections, many efforts were made to correct deficiencies in federal financial management and to improve the accounting, auditing, and administrative controls being used by Congress and the executive branch. Beginning in

the latter 1980's, signs of lack of fiscal responsibility underscored the need for major reform in government finances. These signs included:

- A published budget deficit in 1987 of 148 billion dollars, which was charged as being understated by tens of billions of dollars
- Accusations that Congress and the administration were "cooking the books"
- A published report by the Comptroller General stating that Congress and the executive branch were using "cooperative accounting" practices
- The use of non-federal funds to cover government debts and liabilities
- Delaying and rolling 1987 costs to other fiscal years to misrepresent the financial condition of the federal government [Ref. 5:p. 41]

In 1989, a study by the American Institute of Certified Public Accountants (AICPA) revealed in its conclusions the status of federal financial management. These findings would become the foundation of the Chief Financial Officers (CFO) Act of 1990.

- There is no single Chief Financial Officer (CFO) charged with and held responsible for the fiscal and financial affairs of the country
- The current accounting and reporting practices and procedures may not be appropriate to the unique circumstances of the federal government and are not being applied consistently government-wide or within individual departments or agencies
- The financial statements of federal departments and agencies are not uniform or comparable government-wide
- The federal government does not require annual independent audits of its financial statements, although it has legislatively imposed this requirement on many state and local governments, publicly owned companies, and others [Ref. 6]

Nearly everyone involved agreed that federal financial management was in a desperate state, as can be seen by Congress' conclusion in the CFO Act:

"The federal government is in great need of fundamental reform in financial management requirements and practices as financial management systems are obsolete

and inefficient and do not provide complete, consistent, reliable, and timely information.”

[Ref. 7]

The CFO Act, signed into law on November 15, 1990, reflected a concern by Congress that the financial management practices of the federal government must be quickly and radically changed. Specifically:

- General management functions of the OMB required enhancement to improve both the efficiency and effectiveness of federal finances
- OMB’s financial management functions needed improvement in order to provide direction and leadership in the development of a modern financial structure with systems to cope with the times
- Fraud, waste and abuse of hundreds of millions of dollars could be decreased each year through increased central coordination of internal controls and financial accounting
- Fundamental reform was needed to modernize obsolete and inefficient financial management systems, which were not producing timely, accurate, reliable and useful information
- Financial reporting required overhaul to eliminate the fact that current practices were not producing accurate disclosure of current and probable future costs of operating and investment decisions; did not provide for comparison of actual costs among executive agencies; and did not provide timely information required for efficient management of programs [Ref. 5:p. 45]

Regarding financial reporting, the CFO Act required the preparation and submission of audited consolidated financial statements under the cover of a management report. The report is to include:

- A statement of financial position
- A statement of operations
- A statement of cash flow
- A reconciliation to the budget report, if applicable
- A statement on internal accounting and administrative control systems by the head of federal agencies
- Any other comments and information necessary to inform Congress about the operations and financial condition of the agency. [Ref. 7:Sec 3515]

The premise of the CFO Act was that through integrated accounting and financial management systems, including financial reporting and internal controls in compliance with applicable federal accounting principles and standards, executive agencies and departments could provide leaders and managers with information responsive to their decision making needs. [Ref. 8:p. 81]

C. THE GOVERNMENT PERFORMANCE AND RESULTS ACT OF 1993

To address federal managers' concerns over lack of program controls and inadequate information on program performance in attempting to combat government inefficiency and ineffectiveness, the Government Performance and Results Act (GPRA) of 1993 required OMB to submit to Congress a strategic plan for each agency. This strategic plan must include a mission statement of major functions, outcome related goals and objectives, and a description of how the goals will be achieved. Agencies must cite the processes, skills, technology, capital, information, and other resources to be used in meeting their goals. Plans must cover a five-year period and are to be updated every three years.

Another area this act addressed was consistency of terms used by overseers of federal departments and agencies. The following definitions are to be used when discussing and reporting all information relating to this act:

- Outcome measure – an assessment of the results of a program activity compared to its intended purpose
- Output measure – the tabulation, calculation, or recording of an activity or effort expressed in a quantitative or qualitative manner
- Performance goal – a target level of performance expressed as a tangible, measurable objective, against which factual achievement shall be compared, including a goal expressed as a quantitative standard, value, or rate

- Performance indicator – a particular value or characteristics used to measure output or outcome
- Program activity – a specific activity related to the mission of an agency
- Program evaluation – an assessment, through objective measurement and systematic analysis, of the manner in and extent to which an agency program achieves intended objectives.[Ref. 5:p. 37]

Under this Act, federal agencies would move away from simply measuring inputs, activities, and outputs to measuring outcomes. [Ref. 8:p. 83]

D. THE GOVERNMENT MANAGEMENT REFORM ACT OF 1994

The Government Management Reform Act (GMRA) requires the head of each agency to prepare and submit to OMB by March 1 of each year an audited financial statement for the preceding year showing the financial position of the agency, its results of operations, and its status of financing. Additionally, beginning no later than March 31, 1998, the Secretary of the Treasury was to submit to the President and Congress a consolidated set of financial statements covering the accounts and associated activities of the executive branch of the United States government. The audit of these statements is to be completed by the Comptroller General, the head of the GAO.

For the first time ever, the Congress required government-wide financial statements to be prepared and audited.

E. THE FEDERAL FINANCIAL MANAGEMENT IMPROVEMENT ACT OF 1996

The latest in this recent series of acts geared towards improving financial management in the federal government is the Federal Financial Management Improvement Act (FFMIA) of 1996. The Act was premised on the assumption that current federal accounting and fiscal practices undermined the ability of government officials to provide credible and reliable financial data, encouraged waste, and did not assist in achieving a balanced budget. Highlights of this act included:

- Recognized the Federal Accounting Standards Advisory Board (FASAB) as the governing body for accounting standards, concepts and reporting requirements for the federal government
- Required agencies to incorporate FASAB standards and to evaluate cost and performance information
- Required federal agencies to comply with the Standard General Ledger
- Directed those conducting audits of agency financial statements to ascertain the agencies' financial systems compliance with the provisions of this act. [Ref. 9:Sec. 803]
- Directed the GAO to annually report whether the financial statements of the federal government were prepared in accordance with applicable standards and whether the uniform accounting standards for the federal government are adequate. [Ref. 5:p. 38]

The following chapters will discuss federal financial statements, financial ratios, financial ratio classification frameworks, and dimensions of financial condition. These topics lead to the determination of whether the goals of financial management regulation are achievable with regard to financial accounting in the federal government.

THIS PAGE INTENTIONALLY LEFT BLANK

III. FEDERAL FINANCIAL STATEMENTS

As stated in Chapter II, the Constitution of the United States mandates that the federal government publish a regular statement of accounting for receipts and expenditures of all public monies from time to time. The Constitution's broad scope left to Congress and the executive branch the form and content requirements of these regular statements. But, as seen in the legislative review of federal financial management, the government never set accounting policy and systems standards with which to ensure financial statement standardization and consistency until 1990.

A. FEDERAL ACCOUNTING STANDARDS ADVISORY BOARD

In 1990, the Federal Accounting Standards Advisory Board (FASAB) was established by the Secretary of the Treasury, the Director of the OMB, and the Comptroller General. Independent of specific agency or regulatory control, the nine-member board was created to review and recommend accounting standards and principles for the federal government considering the financial and budgetary information needs of congressional oversight groups, executive agencies, and the needs of other users of federal financial information. [Ref. 10] FASAB recommendations are made to the board's principals: the Secretary of the Treasury, the Director of the OMB, and the Comptroller General. Upon adoption, the recommendations are published as Statements of Federal Financial Accounting Standards (SFFAS) or Statements of Federal Financial Accounting Concepts (SFFAC), the generally accepted accounting principles for the federal government.

**B. STATEMENT OF FEDERAL FINANCIAL ACCOUNTING CONCEPTS
NUMBER 1**

The objectives of federal financial reporting are conceptualized in SFFAC Number 1. It focuses on the users of federal financial statements, their needs, and the objectives of such reporting. Each of these subjects will be discussed below.

1. Users of Federal Financial Statements

The users of federal financial information can be classified in four major groups: citizens, Congress, executives, and program managers. [Ref. 11:p. 26]

The citizens of the country include individuals, the media, public interest groups and state and local legislators. Paying for government and receiving benefits from government, citizens are concerned about individual programs, candidates for office, government provided services, and the fiscal responsibility of the persons elected or appointed to federal positions. [Ref. 11:p. 26]

The Congressional group includes elected officials, their staffs, the CBO, and the GAO. Of primary concern to this group are policies, priorities, and programs to implement revenue and spending policies. Additionally, Congress is tasked with monitoring the management performance of the executive branch with regard to the efficiency and effectiveness of their departments, agencies and programs.

The executives include the President, federal agency and department heads, and the deputies, undersecretaries and assistants of the numerous bureaus, departments and agencies. [Ref. 11:p. 28] Executives focus on the strategic plans and programs developed to achieve goals and policies. Directly concerned with the management of programs, executives determine whether program managers are effectively and efficiently utilizing resources in their operations. Additionally, with the exception of the President,

executives are responsible for providing the President and Congress with the information necessary to allow for the monitoring of government performance.

The last group, program managers, is responsible for the effective and efficient management of government programs. Their primary concerns are developing operating plans, ensuring the needs of staffing, money, facilities and inventory are addressed, and the proper submission and execution of budget requests and appropriated funds.

2. Needs of Users of Financial Reports

SFFAC Number 1 categorizes the needs for financial information into four broad areas: budget integrity, operating performance, stewardship, and systems and control. [Ref. 11:p. 29]

All of the users mentioned above require information regarding the budget. Citizens want to be assured that their elected officials are spending their taxes responsibly. The President, Congress and government executives require aggregate economic data on which to base fiscal policy, future budgeting and the financing needs of the government. [Ref. 11:p. 29] Program managers require budgetary data to monitor the day-to-day operating status of their programs, to guard against violations of the Anti-Deficiency Act, and to ensure budgetary resources are used for or available for the purposes they require.

Operating performance affects the users of financial information in varying ways. Citizens are interested in the operating performance of programs that directly affect them. Congress and executives use operating performance data to make comparative analyses of programs and to determine if alternative methods for conducting business are cost efficient and operationally effective. Program managers monitor operating performance

to measure program outputs and determine if program outcomes are meeting their intended purposes.

Stewardship of government resources is of benefit to the nation as a whole. The proper utilization of resources directly impacts the financial condition of the country, drives alternatives for future spending, and determines patterns of capital spending and consumption spending. From citizen buying habits to Congressional tax policy to program spending, the safeguarding and prudent use of government assets is vital to the determination of how government activities affect the financial condition of all user groups.

Users at all levels require information on the adequacy of financial management systems and controls. [Ref. 11:p. 32] Citizens demand assurances that resources provided are protected and that procedures are in place for their economic and efficient use. The Executive Branch and Congress require systems and controls to provide the assurances demanded of them by the citizenry. Program managers, in order to effectively administer their programs, require internal controls and systems to maintain accountability of funding and resources.

The needs of government financial information at all levels require that costs and budgetary resources be accounted for and measured in a consistent manner. Government financial reporting standards lead to accomplishing this task and providing users with the data necessary to make informed decisions.

3. Objectives of Federal Financial Reporting

The federal government receives its power and resources from the consent of the governed. It is therefore responsible for reporting its actions and operation results to the

users identified above. That said, one must keep in mind that an analysis of whether government operations are being performed efficiently and effectively cannot be deciphered from financial statements alone. Financial statements are a useful contribution when delving into government operational analysis. SFFAC Number 1 lays out four objectives of federal financial reporting. These objectives are intended to improve the relevance, consistency, and quality of federal accounting for the vast array of applications that users require of the data. The objectives are: budgetary integrity, operating performance, stewardship, and systems and controls. This thesis will use the first three objectives in developing a ratio framework for analysis of financial ratios. The definitions that follow are quoted from SFFAC Number 1.

a. *Budgetary Integrity*

Federal financial reporting should assist in fulfilling the government's duty to be publicly accountable for monies raised through taxes and other means and for their expenditure in accordance with the appropriations laws that establish the government's budget for a particular fiscal year and related laws and regulations. [Ref. 11:p. 35]

b. *Operating Performance*

Federal financial reporting should assist report users in evaluating the service efforts, costs, and accomplishments of the reporting entity; the manner in which these efforts and accomplishments have been financed; and the management of the entity's assets and liabilities. [Ref. 11:p. 38]

c. *Stewardship*

Federal financial reporting should assist report users in assessing the impact on the country of the government's operations and investments for the period and how, as a result, the government's and the nation's financial conditions have changed and may change in the future. [Ref. 11:p. 41]

d. *Systems And Controls*

Federal financial reporting should assist report users in understanding whether financial management systems and internal accounting and administrative

control are adequate to ensure transactions are executed within the parameters of the law, consistent with authorized purposes, recorded in accordance with published standards, safeguarded to deter waste, fraud and abuse, and adequately support performance measurement information. [Ref. 11:p. 45]

C. STATEMENT OF FEDERAL FINANCIAL ACCOUNTING CONCEPTS NUMBER 2

SFFAC Number 2 provides guidance as to criteria to determine which entities ought to submit financial reports and what should be encompassed by a federal agency's financial reports. It does not specify entities that must submit statements. That is the responsibility of Congress, the OMB and other oversight organizations and resource providers.

1. Criteria for Identifying Reporting Entities

Reporting entities are those departments, agencies, or organizations whose financial statements are issued to communicate financial and related information regarding the entity. The three criteria described in SFFAC Number 2 are:

- Management, held accountable for the entity's performance, is responsible for controlling and deploying resources, producing outputs and outcomes, and executing the entity's budget or a portion thereof. [Ref. 12:par. 29]
- The span of the entity's performance is such that financial statements would provide users with a meaningful representation of the entity's operating performance and financial status. [Ref. 12:par. 29] When referring to the scope of an entity's operation, the department or agency headquarters is not all inclusive of this financial reporting responsibility. Under the financial umbrella of larger agencies, programs, smaller agencies, sub-organizations, and government-supported enterprises must be evaluated as to whether they meet specific criteria to be included in the entity's financial reports.
- There are likely to be interested users who can utilize the financial information contained in the statements to make budgetary and resource allocation decisions, and hold accountable the entity for the employment and use of resources. [Ref. 12:par. 29]

2. Financial Reporting for an Organizational Entity

In meeting the four objectives of federal financial reporting, SFFAC Number 2 suggests that an entity's financial statements include the following: Management Discussion and Analysis; Balance Sheet; Statement of Net Costs; Statement of Changes in Net Position; Statement of Custodial Activities, when appropriate; Statement of Budgetary Resources; Statement of Program Performance Measures; and Accompanying Footnotes. [Ref. 12:par. 74] SFFAC Number 2 also provides the elements most likely to be found in each of the major financial statements.

D. OFFICE OF MANAGEMENT AND BUDGET BULLETIN 97-01

Detailed definitions regarding the elements, form and content of financial statements are provided in OMB Bulletin 97-01. Incorporating FASAB guidance provided in its concept and statements, OMB provides a framework for reporting which includes mandatory items in addition to allowing entities the flexibility to include items deemed useful to Congress, agency managers or the public. The executive departments and agencies covered by this bulletin and used in this thesis are:

- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Education
- Department of Energy
- Department of Health and Human Services
- Department of Housing and Urban Development
- Department of the Interior
- Department of Justice
- Department of Labor
- Department of State
- Department of Transportation

- Department of the Treasury
- Department of Veterans Affairs
- Agency for International Development
- Environmental Protection Agency
- Federal Emergency Management Agency
- General Service Administration
- National Aeronautics and Space Administration
- National Science Foundation
- Nuclear Regulatory Commission
- Office of Personnel Management
- Small Business Administration
- Social Security Administration

The following will describe and illustrate the six principal federal financial statements required of the preceding entities. In order to be meaningful in understanding the financial position of an individual government entity, all users of financial statements should be familiar with the intended purpose and content of each statement.

1. Balance Sheet

The Balance Sheet presents amounts of future economic benefits owned or managed by the entity (assets), amounts owed by the entity (liabilities), and amounts comprising the difference (net worth), as of a specific date and time. [Ref. 13:p. 16] Federal entity balance sheets must break down assets and liabilities into whether they are intragovernmental or governmental. Intragovernmental assets arise from transactions among federal entities and governmental assets arise from transaction with non-federal entities. The term non-federal encompasses domestic and foreign persons as well as organizations outside the U.S. government. [Ref. 13:p.17] Additionally, assets must be reported as entity assets or non-entity assets, the difference being what is available for the particular entity to spend and what is not. Liabilities must be reported as covered or not

covered by budgetary resources, resources being new budget authority, spending authority from offsetting collections, recoveries of unexpired budget authority, unobligated balances of budgetary resources at the beginning of the year, or net transfers of prior year balances during the year. [Ref. 13:p. 21] Figure 3.1 illustrates a hypothetical federal entity Balance Sheet.

2. Statement of Net Cost

The Statement of Net Cost is designed to show separately the programs and activities comprising the net cost of operations for the period, normally a fiscal year. [Ref. 13:p. 26] Supporting schedules to this statement may be required based on the fact that the complexity and or number of suborganizations within a federal entity make full display of the information impracticable in the subject statement. Net cost of operations is comprised of the direct costs and all other costs that can be traced, assigned on a cause

**Federal Service Agency
CONSOLIDATED BALANCE SHEET
As of September 30, 1998
(in billions of dollars)**

ASSETS

Entity assets

Intragovernmental	\$ 500
Governmental	<u>\$ 13</u>
<i>Total entity assets</i>	<u>\$ 513</u>

Nonentity assets

Intragovernmental	\$ 2
Governmental	<u>\$ 5</u>
<i>Total nonentity assets</i>	<u>\$ 7</u>

Total assets	<u>\$ 520</u>
---------------------	----------------------

LIABILITIES

Liabilities covered by budgetary resources

Intragovernmental liabilities	\$ 4
Governmental liabilities	<u>\$ 36</u>
<i>Total liabilities covered by budgetary resources</i>	<u>\$ 40</u>

Liabilities not covered by budgetary resources

Intragovernmental liabilities	\$ 1
Governmental liabilities	<u>\$ 6</u>
<i>Total liabilities not covered by budgetary resources</i>	<u>\$ 7</u>

Total liabilities	<u>\$ 47</u>
--------------------------	---------------------

NET POSITION

Unexpended appropriations	<u>\$ 3</u>
Cumulative results of operations	<u>\$ 470</u>

Total net position	<u>\$ 473</u>
---------------------------	----------------------

Total liabilities and net position	<u>\$ 520</u>
---	----------------------

Figure 3.1. Balance Sheet From [Ref. 14:p. 54].

and effect basis, or reasonably allocated to individual program outputs offset by earned revenues, the funds raised from the services or goods provided to the public or another government agency. Additionally, entities must include costs and earned revenues that are either insignificant or cannot be traced, assigned or allocated to the individual programs. Figure 3.2 illustrates a hypothetical Statement of Net Cost.

Federal Service Agency
CONSOLIDATED STATEMENT OF NET COST
As of September 30, 1998
(in billions of dollars)

	Suborganization A	Suborganization B	Suborganization C	Consolidated Totals
COSTS:				
<i>Crosscutting programs</i>				
Program A:				
Intragovernmental	\$ 10	\$ -	\$ 5	\$ 15
With the public	\$ 130	\$ -	\$ 100	\$ 230
Total	\$ 140	\$ -	\$ 105	\$ 245
Less earned revenues	\$ (7)	\$ -	\$ (1)	\$ (8)
Net program costs	\$ 133	\$ -	\$ 104	\$ 237
<i>Other programs</i>				
Program B:	\$ -	\$ 63	\$ -	\$ 63
Program C:	\$ -	\$ 47	\$ -	\$ 47
Program D:	\$ -	\$ 26	\$ -	\$ 26
<i>Cost not assigned to programs to programs</i>	\$ 6	\$ 8	\$ 1	\$ 15
<i>Less earned revenues not attributed to programs</i>	\$ (3)	\$ (4)	\$ (2)	\$ (9)
DEFERRED MAINTENANCE (Note X)				
NET COST OF OPERATIONS	<u>\$ 136</u>	<u>\$ 139</u>	<u>\$ 103</u>	<u>\$ 378</u>

Figure 3.2. Statement of Net Cost From [Ref. 14:p. 57].

3. Statement of Changes in Net Position

The Statement of Changes in Net Position reports the beginning net position, the items that affected and caused the net position to change based on entity operations, and

the ending net position. [Ref. 13:p. 31] The statement takes the net cost of operations from the preceding statement and offsets the costs through financing sources. Financing sources include appropriations, taxes, donations, and transfers to and from other agencies. [Ref. 14:p. 58] An additional source of financing is imputed financing, the costs incurred by the reporting entity but financed by another entity or costs attributable to operations that do not require a direct payment. Imputed financing reflects the fact that federal departments and agencies are not independent economic activities. [Ref. 14:p. 58] Of note is the line item for increases or decreases in unexpended appropriations. This line item permits entities the ability to carry over to the next fiscal year unexpended appropriations in certain circumstances. Figure 3.3 is an example of a Statement of Changes in Net Position.

4. Statement of Budgetary Resources

The Statement of Budgetary Resources, to be prepared by reporting entities whose financing comes wholly or partially from budgetary resources, provides information on budgetary resources made available and outlays for the fiscal year. This statement illustrates, in condensed form, the information required by OMB Circular A-34 to be reported as the Report on Budget Execution (SF-133). [Ref. 13:p. 34] Prepared using budgetary accounting rules vice accrual accounting rules, this statement, for the first time, allowed for audits of federal budget execution to be conducted at the reporting entity level. [Ref. 14:p. 60] Additionally, entities must make supplemental disclosures if the data provided in this statement differs from the “actual” figures reported in the President’s budget. [Ref. 14:p. 60] Figure 3.4 illustrates a Statement of Budgetary Resources.

Federal Service Agency
CONSOLIDATED STATEMENT OF CHANGES IN NET POSITION
As of September 30, 1998
(in billions of dollars)

	Suborganization A	Suborganization B	Suborganization C	Consolidated Totals
Net cost of operations:	\$ (136)	\$ (139)	\$ (103)	\$ (378)
Financing sources (other than exchange revenues)				
Appropriations used	\$ 134	\$ 134	\$ 103	\$ 371
Taxes, donations, and other non-exchange revenues	\$ 12	\$ 8	\$ 4	\$ 24
Transfers-in(out)	\$ -	\$ -	\$ -	\$ -
Imputed financing	<u>\$ 4</u>	<u>\$ 5</u>	<u>\$ 1</u>	<u>\$ 10</u>
Net results of operations	\$ 14	\$ 8	\$ 5	\$ 27
Prior period adjustments	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Net change in cumulative results of operations	\$ 14	\$ 8	\$ 5	\$ 27
Increase (decrease) in unexpended appropriations	<u>\$ (3)</u>	<u>\$ 2</u>	<u>\$ (1)</u>	<u>\$ (2)</u>
Change in net position	\$ 11	\$ 10	\$ 4	\$ 25
Net position - beginning of period	\$ 159	\$ 250	\$ 39	\$ 473
Net position - end of period	<u>\$ 170</u>	<u>\$ 260</u>	<u>\$ 43</u>	<u>\$ 494</u>

Figure 3.3. Statement of Changes in Net Position From [Ref. 14:p. 59].

Federal Service Agency
STATEMENT OF BUDGETARY RESOURCES
As of September 30, 1998
(in billions of dollars)

Budgetary resources:

Budget authority	\$ 444
Unobligated balances - beginning of period	\$ 83
Spending authority from offsetting collections	\$ 4
Adjustments	<u>\$ 2</u>
Total budgetary resources	<u>\$ 533</u>

Status of budgetary resources:

Obligations incurred, gross	\$ 381
Unobligated balances - available, ending	\$ 150
Unobligated balances - not available, ending	<u>\$ 2</u>
Total status of budgetary resources	<u>\$ 533</u>

Outlays:

Obligations incurred, net	\$ 374
Obligated balance transferred, net	\$ -
Obligated balance, net - beginning of period	\$ 35
Less obligated balance, net - end of period	<u>\$ (39)</u>
Total outlays	<u>\$ 370</u>

Figure 3.4. Statement of Budgetary Resources From [Ref. 14:p. 60].

5. Statement of Financing

The Statement of Financing acts as a reconciliation between the accrual accounting Statement of Net Cost and the budgetary accounting Statement of Budgetary Resources. This reconciliation also ensures that the reporting entity's financial systems maintain a proper relationship between accrual and budgetary accounts. [Ref. 13:p. 36] Broken down into three sections, this statement's bottom line is the net cost of operations: (obligations and nonbudgetary resources) minus (resources that do not fund the net cost of operations) plus (costs that do not require resources) plus (financing sources yet to be provided). [Ref. 14:p. 60]

The first section, obligations and nonbudgetary resources, reports the computation of obligations incurred and adjustments for offsetting collections to expenditure accounts, recoveries of budgetary authority, and other items defined in OMB Circular A-34. [Ref. 13:p. 36] The second section, resources that do not fund net costs of operations, includes changes in goods, services, and benefits ordered but not yet received or provided; goods or services capitalized on the balance sheet; and items treated as a financing source yet to be provided in a prior period that are being recognized as a budgetary resource in the current period. [Ref. 13:p. 36] The third section lists costs included in determining the cost of operations that do not require budgetary resources such as depreciation and the expenses related to the revaluation of assets. Figure 3.5 provides an example of a Statement of Financing.

6. Statement of Custodial Activity

The Statement of Custodial Activities, required only of those entities whose primary mission involves collecting nonexchange revenues such as duties and taxes that finance government-wide programs, details the collection and disposition of such revenues. Entities having nonexchange revenues that are non-material and incidental to their primary mission may forego the preparation of this statement and record the custodial activity in the footnotes to the financial statements. [Ref. 13:p. 39] The bottom line of this statement should always equal zero. Figure 3.6 illustrates a Statement of Custodial Activity.

Federal Service Agency
STATEMENT OF FINANCING
As of September 30, 1998
(in billions of dollars)

Obligations and nonbudgetary resources:

Obligations incurred, gross	\$ 381	
Less: spending authority from offsetting collections and adjustments	\$ (6)	
Donations and other revenues not in budget	\$ 15	
Financing imputed for cost subsidies	\$ -	
Transfers-in(out)	<u>\$ -</u>	
Total obligations as adjusted, and nonbudgetary resources		\$ 390

Resources that do not fund net cost of operations:

Change in amount of goods, services, and benefits ordered but not yet received or provided	\$ (43)	
Costs capitalized on the balance sheet	\$ (14)	
Financing sources that fund costs of prior periods	<u>\$ (7)</u>	
Total resources that do not fund net cost of operations		\$ (64)

Costs that do not require resources:

Depreciation and amortization	\$ 19	
Revaluation of assets and liabilities	<u>\$ 5</u>	
Total costs that do not require resources		\$ 24

Financing sources yet to be provided	<u><u>\$ 28</u></u>
---	---------------------

Net cost of operations	<u><u>\$ 378</u></u>
-------------------------------	----------------------

Figure 3.5. Statement of Financing From [Ref. 14:p. 63].

Federal Service Agency
STATEMENT OF CUSTODIAL ACTIVITIES
As of September 30, 1998
(in billions of dollars)

Sources of collections

Cash collections (by type of tax or duty)	\$ 50
Less refunds and other payments	<u>\$ (4)</u>
Net collections	\$ 46
Accrual adjustment	\$ 7
Total revenue	<u>\$ 53</u>

Disposition of collections

Transferred to others net of refunds (by recipient)	\$ 43
Increase (decrease) in amounts to be transferred	\$ 3
Retained by the entity	<u>\$ 7</u>
Total disposition of revenue	<u>\$ 53</u>

Net custodial activity	<u><u>\$ 0</u></u>
-------------------------------	--------------------

Figure 3.6. Statement of Custodial Activities From [Ref. 14:p. 60].

THIS PAGE INTENTIONALLY LEFT BLANK

IV. RATIOS AND FINANCIAL RATIO ANALYSIS

A. RATIOS

Webster's Third International Dictionary defines a ratio as "the fixed or approximate relationship of one thing to another or between two or more things (as in number, quantity, or degree)". Likewise, Barron's Dictionary of Accounting Terms explains a ratio simply as the "relationship of one amount to another." [Ref. 15:p. 566] When developing ratios, the purpose of comparisons is to find meaning in abstract information. [Ref. 16:p. 4] The broad definitions above denote that all that is required for comparison is a relationship between the numbers being examined. A ratio, to be a logical instrument for measuring numerical relation, must be a fraction containing, as numerator and denominator, items inherently relational and comparable to one another. [Ref. 8:p. 6]

Ratios have the ability to expedite analysis involving numerical data by reducing the large number of items involved into a relatively small set of readily comprehended meaningful indicators. [Ref. 17:p. 11] Central to this thesis and of importance in all of business is the comparison of numbers with the goal of revealing underlying truths and solving problems. In the context of this thesis, the underlying truth to be discovered is whether fundamental dimensions of financial condition exist in the federal government and, if so, what are the reduced, distinctive set of ratios that will help one better understand these dimensions. Ratios are the means of exploring this hypothesis.

B. A BRIEF HISTORY OF RATIOS

1. Ratios

It is difficult to pinpoint the first use of ratios or their use in the business environment. Ratios can be traced to early Greek writers and even the Babylonians understood the concept of ratios as early as 2200 B.C. The ratios used during these periods were 'equal ratios,' synonymous with proportion, not ratios of a higher level of abstraction. Circa 300 B.C., Euclid, in Book V of his *Elements*, presents the first usable explanation of the ratio concept. Like earlier ages, Euclid's ratios tended more toward 'equal ratios.' But Euclid went further in acknowledging a conceptual difference between ratio and proportion. [Ref. 18:p. 39] During the Middle Ages, the use of ratios for arithmetic purposes resulted in the ideas of three general integer ratio types still used today:

- Ratios of equality (A:B)
- Ratios of greater inequality (A:B when $A > B$)
- Ratios of lesser inequality (A:B when $A < B$) [Ref. 19:pp. 479-480]

From the Middle Ages on, the ideas surrounding the use of ratios led to their use in analytical situations.

2. Business Ratios

The use of some form of business ratios has most likely been in existence as long as humans have conducted financial transactions. Documentation of business ratios in literature includes Sister Isadore Brown who discussed the use of banking ratios contained in the 1872 annual report to Congress. [Ref. 15:p. 4] Foulke points to the current ratio, current assets divided by current liabilities, being used in the late 1800's. [Ref. 20:p. 176] In 1913, a study of shoe store expenses using ratios was conducted at

Harvard University. [Ref. 21:p. 3] The DuPont Company, in 1919, began using a simple integrated set of ratios that is still referred to widely today.

The use of business and financial ratios exploded in the late nineteenth and early twentieth centuries, from lending institutions, corporate boards, the accounting and auditing professions, and even the individual investor. Alexander Wall and Raymond Duning, two early pioneers in the field of business ratios, summarized much of their knowledge and published it in 1928 under the title, *Ratio Analysis of Financial Statements*. [Ref. 15:p. 5] As the area of business ratios grew, some thought that the calculation and interpretation of business ratios was absorbing too much managerial time. But with the introduction of computers into the business world, the ability to create both financial and non-financial business ratios has continued to grow.

C. USEFULNESS OF FINANCIAL RATIOS

There are two primary reasons for statistically analyzing business entities through ratios. First is to control for the effect of size on the variable being examined and second to control for industry wide factors. [Ref. 8:p. 8] This being said, the use of ratio analysis in the business setting can include any ratio formulated by those conducting the analysis, if they derive benefit from the analysis of such ratios. Gates includes the following as possible uses of ratios:

- Monitor growth
- Monitor costs
- Measure Profitability
- Identify Trends
- Define Business Plans
- Compare one operating period to another
- Compare actual results to plans

- Compare current costs to historical costs
- Measure adequacy of cash and working capital
- Monitor asset allocation
- Monitor collections
- Compare financial and non-financial information
- Track budget performance
- Interpret financial statements
- Measure managerial efficiency [Ref. 16:p. 6]

As seen by this non-exhaustive list, business ratios have the ability to answer a plethora of managerial questions. These questions need not be purely financial, as numerous non-financial ratios can be derived from business data. This thesis will concentrate on federal financial ratios. The ratios to be used in this study will be discussed in depth in Chapter VI.

D. FINANCIAL STATEMENT AND FINANCIAL RATIO ANALYSIS

Financial ratio analysis is a subdivision of financial statement analysis. The analysis of financial statements is the compilation and study of relationships and trends. [Ref. 22:p. 5] It entails looking beyond the face of the financial statements to gather more information. Along with common size analysis, trend analysis, and comparisons, financial ratio analysis is used in financial statement analysis to emphasize the comparative and relative importance of the information presented and to assist management and other interested parties in the evaluation of the organization's position. [Ref. 8:p. 9] As stated above, the documented beginnings of business ratios also signaled the beginning of financial ratio analysis as a means of managerial and stakeholder decision making.

Financial statement analysis using ratios has traditionally concentrated on the study of relationships within a set of financial statements at a given point in time and with

the trends in these relationships over time. [Ref. 23:p. 24] Two of the ways in which financial ratios are analyzed use cross-sectional techniques and time-series techniques. Cross-sectional analysis has as its objective the derivation of information needed for financial decisions by the use of comparisons of the investigated ratios with exogenous norms or standards. [Ref. 17:p. 37] Industry-wide or organization type-wide measures are typically used in cross-sectional analysis. A second method, time-series analysis, searches for systematic patterns in the historic behavior of the series and uses these patterns to make predictions regarding future values of the studied ratios. [Ref. 17:p. 36]

With regard to this thesis, the analysis of federal financial ratios will be conducted using factor analysis, a statistical method used to screen large numbers of ratios in order to choose the most appropriate for further analysis, such as the methods discussed above. Factor analysis will be discussed in greater detail in Chapter VII.

E. LIMITATIONS OF FINANCIAL RATIOS IN FINANCIAL STATEMENT ANALYSIS

As early as 1928, there was a feeling that financial ratios were flowering at such a prolific rate as to distract attention from ratios of real significance. William Anderson Paton noted that there is no doubt the use of financial and operating ratios provides a means of rendering accounting statements more intelligible and significant and a matter which deserves consideration and attention. [Ref. 24:p. 211] Paton further stated that at best, the use of financial ratios is merely a supplementary device, really useful and worthwhile only as its limitations are clearly perceived. [Ref. 24: p. 212]

There is no end to the number of arithmetic ratios that can be calculated from a set of financial statements. This being said, Paton states that as a matter of fact, and fortunately for peace of mind, there are only a relatively few ratios which have any

considerable significance, or even significance whatsoever, to the management of business, and in the context of this thesis, government business. [Ref. 24:p. 212] The objective of this study is to attempt to find those relatively few ratios of considerable significance to federal financial statement analysis.

Secondly, when dealing with financial and operating ratios, one should always remember the more or less obvious proposition that a ratio per se has little real significance. [Ref. 24:p. 214] Sound managerial conclusions and policies cannot be formulated simply by scrutinizing ratios, however meticulously calculated and displayed. [Ref. 24:p. 214] Ratios represent clues, a starting point for further investigation.

Paton's outlined procedure for the use of ratios follows:

- Select a relatively few relationships of this character which can have any real significance, which hold forth any promise.
- Calculate these percentages, preferably for several past periods as well as for the current period.
- Exhibit the results in the most effective manner, perhaps in graphic form, in each case in comparison with the standard.
- Point to all considerable variations from standard.
- Investigate the causes of these variations wherever possible.
- In the one or two cases, if any, where action is possible or feasible, revamp managerial policy appropriately. [Ref. 24:p. 215]

The limitations of financial ratios outlined above are not intended as an argument against the calculation and use of ratios. Financial ratios and the analysis of ratios have an important place in the area of business statistics. It must be remembered that each study of financial statements using financial ratios must be looked at independently and not over generalized with the vast number of financial ratios available.

Ratios have been used in various forms and contexts for thousands of years. In the business world, documented use of ratios has only encompassed the past century and a half. While the benefits of ratios are numerous and the number of useable ratios is quite large, ratios have limitations. The following chapters will discuss studies in the classification of ratios into frameworks and the framework to be used in this research.

THIS PAGE INTENTIONALLY LEFT BLANK

V. FINANCIAL RATIO CLASSIFICATION FRAMEWORKS

As discussed in the previous chapter, there are numerous useful financial ratios that can be constructed and used to determine the financial condition of an entity, be it for profit, not for profit, or governmental. The issue is to find which ratios should be used to examine federal financial statements, for evaluating financial performance, predicting future behaviors and comparing different entities. In order to tackle this issue, researchers have developed a method to assist in organizing financial ratios into specific classifications. [Ref. 25:p. 8] These classifications, or taxonomies, group sets of ratios into several categories, with the ratios in each category pointing toward a single construct. [Ref 26:p. 6] An example would be the traditional classifications of ratios for corporate and for profit entities: liquidity, debt management, operating, profitability, and stakeholder. [Ref. 27:pp. 690-705] This chapter will discuss past studies conducted to analyze ratios in the for profit corporate environment and classifications constructed for federal financial documents.

A. PAST STUDIES

In a 1973 study of 221 manufacturing plants, Pinches, Mingo and Caruthers, using factor analysis, concluded that seven empirically based, independent patterns existed and were stable over time. The seven classifications found were: Return on Investment, Capital Intensiveness, Inventory Intensiveness, Financial Leverage, Receivable Intensiveness, Short Term Liquidity, and Cash Position. [Ref. 28:pp. 389-395] The stability over time of these classifications was satisfied by calculating ratios

using financial statements from 1951, 1957, 1963, and 1969. Also identified in this study were the lead ratios for each of the seven classifications. [Ref. 28:pp. 389-395]

- | | |
|-----------------------------|------------------------------------|
| • Return on Investment | Net Income/Net Worth |
| • Capital Intensiveness | Sales/Total Assets |
| • Inventory Intensiveness | Inventory/Sales |
| • Financial Leverage | Debt/Total Capital |
| • Receivables Intensiveness | Receivables/Inventory |
| • Short Term Liquidity | Current Assets/Current Liabilities |
| • Cash Position | Cash/Fund Expenditures |

This research was closely followed by a study in 1975 by Pinches, Eubank, Mingo, and Caruthers. [Ref. 29:pp. 295-310] The purpose of this study was to determine the financial ratio classifications and to examine the short-term stability of the financial ratio classifications vice the long-term, which had been studied in the earlier analysis. [Ref. 25:p. 10] The period covered was 1966 through 1969 using the same 221 firms. The classification results of this study were essentially the same as in the earlier research and short-term stability was proven by studying the following time periods: 1966-1967, 1967-1968, 1968-1969, and 1966-1969. [Ref. 25:p. 10]

“Chen and Shimerda, in 1981, applied the classification framework developed in the above studies and concluded that ratio classification categories in other studies were consistent, and could be reconciled with the Pinches et.al., [sic] groups.” [Ref. 26:p. 6] Their research used the earlier classifications and analyzed collated ratios across a variety of studies, dealing particularly with studies predicting business failure. [Ref. 30:p. 9] Their conclusions inferred that the “Pinches et.al., [sic] framework was generally valid, broadly inclusive and stable.” [Ref. 26:p. 6]

Studies including ratios based on cash flow data (Gombola and Ketz, 1983a; 1983b) and "decomposition measures" (Johnson, 1979) defined new factors beyond those developed in the Pinches et al, analyses. [Ref. 26:p. 7] These studies did not disprove the earlier studies, but instead used expanded data from which to compute ratios to include with the Pinches et al, framework.

In 1987, Ketz, Doogar, and Jensen completed a ten-year study to determine if ratios calculated from firms across several different industries could be compared. The null hypothesis of this study was that financial ratios of one industry are measuring the same underlying concepts as the financial ratios of another industry. [Ref. 31] If not, and the underlying concepts were different, cross-industry comparisons would be meaningless. Their study calculated 32 ratios from 476 firms over a ten-year period. The factor analysis results were that, indeed, financial ratios were correlated across each industry in seven areas: Return, Cash Flow, Cash Position, Debt, Sales, Inventory, and Liquidity. [Ref. 25:p. 13]

The above studies develop a framework of taxonomies, prove their stability over time, and prove that cross-industry analysis can be complete and meaningful.

B. TAXONOMIES IN GOVERNMENT FINANCIAL RATIOS

A research of literature reveals two paths for the discussion of ratio taxonomies, or classifications.

The first follows SFFAC Number 1 and the four objectives of federal financial reporting. Brady (1999) and Kenney (2000) conducted studies to develop financial ratio frameworks along the lines of the four objectives: Budgetary Integrity, Operating Performance, Stewardship, and Systems and Controls. Numerous ratios were developed

for the first three objectives, with Systems and Control, a process-based objective, being omitted. Systems and Control is a subjective measure of an entity's ability to have in place the financial management systems and internal accounting and control mechanisms sufficient to ensure the objectives of budgetary integrity, operating performance and stewardship are met through auditable financial reporting. This thesis will use the ratio classifications tied to the three financially reportable objectives of SFFAC Number 1 and built on by Brady and Kenney. The possible ratios for use in assessing the budgetary integrity, operating performance and stewardship proposed by Brady and further studied by Kenney will be detailed in Chapter VI and assessed for inclusion in the resulting factor analysis.

A second framework in the literature is the GAO Staff Study, *Financial Reporting: Framework for Analyzing Federal Agency Financial Statements*, written in 1991. The study lists eight attributes: Operating Costs, Operating Results, Operating Efficiency, Capital Investments, Financial Obligations, Financial Condition, Efficiency in Managing Assets, and Efficiency in Managing Administrative Costs. [Ref. 33:pp. 13-26] Along with the attributes are listed the measures and indicators to assess the entity strength in the eight listed areas. Figure 5.1 displays the GAO attributes, measures and indicators.

A drawback to the GAO study is that it was completed prior to publication of the documents outlining the structure of reports and required financial disclosures of federal financial reporting. This being said, an analysis of the GAO framework was completed to ensure that any useful measures were included in the primary analysis and also included under one of the three objectives of financial reporting ratio classifications.

General Accounting Office
FRAMEWORK FOR ANALYZING FEDERAL AGENCY FINANCIAL STATEMENTS
March 1991

Attribute	Measures (M) and Indicators (I)
Operating Costs	(M) The Net Operating Cost = Expenses - (Revenues + Reimbursements) (I) Average Annual Percentage Change in the Net Operating Cost (I) Average Annual Percentage Change in Unit Costs
Operating Results	(M) Net Operating Cost - Appropriated Funds (I) Appropriated Funds/Net Operating Cost (I) Operating Deficit/Net Operating Cost
Operating Efficiency	(I) Input Required Per Unit of Output
Capital Investments	(M) Gross Capital Expenditure - Capital Recovered from the Disposition of Assets (I) Net Capital Investments/Average Balance of Assets (I) Agency or Program Net Capital Investments/U.S. Gov't Net Capital Investments
Financial Obligations	(M) The Amount of Liabilities (I) Assets Reserved for a Liability/The Amount of the Liability
Financial Condition	(I) Cash Surplus or Shortfalls (I) Net Income + Depreciation + Interest Expense/Debt Service Costs (I) Liquid Assets/Liabilities Due Within A Year (I) Liabilities/Assets
Efficiency in Managing Assets	(I) Inventory Turnover (Avg Inventory/Materials and Supplies Expense) (I) Percentage of Overdue Accounts to Total Accounts Receivable; Percentage of Bad Debt Provision to Total Debt Outstanding (I) Rate of Capacity Utilization, Such as Square Feet Per Employee
Efficiency in Managing Admin Costs	(I) Annual Percentage Change in Administration Costs (I) The Net Agency Administration Cost/The Consolidated Net Operating Cost of the Entire Agency

Figure 5.1. Financial Attributes, Measures and Indicators From [Ref. 33:p. 27].

The development of the framework of ratios to be used in this study will rely primarily on an analysis for inclusion of Brady's ratios, but also take into account the GAO study and other ratios deemed relevant for the interpretation of federal financial statements.

THIS PAGE INTENTIONALLY LEFT BLANK

VI. FINANCIAL RATIOS FROM FEDERAL FINANCIAL REPORTS

To unveil possible dimensions of financial condition within the federal government, a financial ratio analysis must be performed. The starting point for such an analysis is the development of a framework of financial ratios. This chapter will discuss the objective and purpose of financial ratio frameworks, and then introduce the reader to the ratios to be used in this analysis and their expected purposes.

A. OBJECTIVE AND PURPOSE OF FINANCIAL RATIO FRAMEWORKS

When developing any framework of financial ratios, one must define the objective and purpose of the framework. The reason for doing so is to ensure the framework provides useful information to meet the needs of the various users, both internal and external, of the financial statements.

1. Objective of Ratio Frameworks

The objective of using a framework for ratio analysis is to facilitate interpretation of financial statements. Reducing the large number of financial statement items into a relatively small set of ratios allows for the meaningful comparison of financial data over time and across reporting entities. [Ref. 8:p. 104] In the case of the federal government, the goal of entity financial reporting is to restore public confidence in the business of government and to restore the qualities of accountability and credibility to federal entities. The framework of ratios developed and used in this thesis is not intended to provide managerial and decision authority personnel with the definitive answers regarding financial condition, but rather to describe the entity's financial condition in

order for users to explore questions and issues regarding the entity in question against the objectives of federal financial reporting.

2. Purpose of the Ratio Framework

The purpose of the framework developed in this study is to address the areas of budgetary integrity, operational effectiveness, and stewardship to the citizens, Congress, executives and program managers discussed in Chapter III. The purpose of the analysis to be conducted is to empirically identify the fundamental dimensions of financial condition in the federal government. While the results may not be consistent with the objectives of SFFAC Number 1, the use of the first three primary objectives of financial reporting in identifying ratios to be analyzed ensures that federal financial statements can be tied to the resulting set of ratios indicative of the dimensions to the objectives set forth in SFFAC Number 1.

B. BRADY'S FRAMEWORK FOR FEDERAL FINANCIAL STATEMENTS

The starting point for developing the ratio framework to be used in this study is Brady's *Framework for Financial Ratio Analysis of Audited Federal Financial Reports*. [Ref. 8] Brady proposed twenty-nine possible ratios for assessing budgetary integrity, operating performance and stewardship. Figures 6.1 through 6.3 illustrate Brady's possible ratios.

Ratio Number	Proposed Ratio	Proposed Ratio Calculation	Proposed Ratio Description
1	Budget Authority to Budgetary Resources	$\frac{\text{Budget Authority}}{\text{Total Budgetary Resources}}$	Describes the relationship between Budget Authority and Total Budgetary Resources. Indicates the percentage of Total Budgetary Resources that is made up of Budget Authority.
2	Other Sources of Funds to Budgetary Resources	$\frac{\text{Total Budgetary Resources} - \text{Budget Authority}}{\text{Total Budgetary Resources}}$	Describes the percentage of Total Budgetary Resources that is made up of Other Sources of Funding. Other Sources of Funding can include such things as unobligated balances from prior fiscal years and spending authority from offsetting collections.
3	Budget Authority to Outlays	$\frac{\text{Budget Authority}}{\text{Total Outlays}}$	Describes the relationship between Budget Authority (or funds appropriated for the fiscal year) and Total Outlays.
4	Outlays to Obligations	$\frac{\text{Total Outlays}}{\text{Obligations Incurred}}$	Describes the relationship between Total Outlays and Obligations Incurred. Indicates the degree to which funds have been outlaid as a percentage of Obligations Incurred.
5	Obligations to Budget Authority	$\frac{\text{Obligations Incurred, Net}}{\text{Budget Authority}}$	Describes the relationship between Net Obligations Incurred and Budget Authority. Provides an indication about whether or not the entity obligated more than it was appropriated for the fiscal year and whether or not it had to rely on other sources of funding.
6	Compliance/ Antideficiency Ratio	$\frac{\text{Obligations Incurred}}{\text{Total Budgetary Resources}}$	Describes the relationship between Net Obligations Incurred and Total Budgetary Resources. Indicates the degree to which Budgetary Resources have been obligated by the reporting entity.
7	Return on Budget Authority	$\frac{\text{Total Outlays}}{\text{Budget Authority} + (\text{Unobl. Bal. (Beg)} - \text{Unobl. Bal (End)})}$	Describes the relationship between Total Outlays and the Total Budgetary Authority used by the entity during the fiscal year. Indicates the return the entity received on Budget Authority in terms of Total Outlays.
8	Return on Total Resources	$\frac{\text{Total Outlays}}{\text{Total Budgetary Resources}}$	Describes the relationship between Total Outlays and Total Budgetary Resources. Indicates the return the entity received on Total Budgetary Resources in terms of Total Resources.
9	Utilization Ratio	$\frac{\text{Budget Authority} + (\text{Unobl. Bal. (Beg)} - \text{Unobl. Bal (End)})}{\text{Total Budgetary Resources}}$	Describes the relationship between the Total Budget Authority used during the fiscal year and Total Budgetary Resources. Indicates how much total Budget Authority was used as a percentage of Total Budgetary Resources.
10	Reliance on Other Sources of Funding Ratio	$\frac{\text{Obligations Incurred} - \text{Budget Authority}}{\text{Budget Authority}}$	Describes the relationship between Obligations Incurred and Budget Authority to determine the extent to which Other Sources of Funding were required.
11	Percentage of Uncovered Liabilities	$\frac{\text{Total Liabilities Not Covered by Budgetary Resources}}{\text{Total Liabilities}}$	Describes the relationship between Total Liabilities Not Covered by Budgetary Resources and Total Liabilities. Provides an indication of the extent to which total liabilities are made up of Total Liabilities Not Covered by Budgetary Resources.

Figure 6.1. Possible Ratios for Assessing Budgetary Integrity From [Ref. 8:p. 109].

Ratio Number	Proposed Ratio	Proposed Ratio Calculation	Proposed Ratio Description
1	Liabilities to Assets	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Describes the relationship between Total Liabilities and Total Assets. Compares what is owed to the value of assets used by the entity.
2	Operating Efficiency Ratio	$\frac{\text{Net Cost of Operations}}{\text{Service Base}}$	Describes the relationship between the Net Cost of Operations and some reporting entity specific base. Accurate calculation of the operating efficiency ratio will require additional information about the reporting entity that may be available in the annual report or from other sources.
3	Net Cost of Operations to Appropriations	$\frac{\text{Net Cost of Operations}}{\text{Appropriations Used}}$	Describes the relationship between the Appropriations Used and the Net Cost of Operations. Indicates to what extent the Net Cost of Operations exceeded the Appropriations Used.
4	Return on Fixed Assets	$\frac{\text{PP\&E}}{\text{Net Result of Operations}}$	Describes the relationship between Property, Plant, and Equipment (PP&E or Fixed Assets) and the Net Results of Operations. Provides an indication of a return on fixed assets for the reporting entity.
5	Net Cost of Operations Growth	$\frac{\text{Net Cost of Operations (Current Year)} - \text{Net Cost of Operations (Prior Year)}}{\text{Net Cost of Operations (Prior Year)}}$	Describes the growth trend of the Net Cost of Operations from the prior fiscal year to the current fiscal year.
6	Unassigned Program Costs to Program Expenses	$\frac{\text{Total Costs Not Assigned to Programs}}{\text{Total Program Expense}}$	Describes the relationship between the Total Costs Not Assigned to Programs with the Total Program Expense. Provides an indication of cost management of the reporting entity.
7	Unassigned Costs to Net Cost of Operations	$\frac{\text{Total Costs Not Assigned to Programs}}{\text{Net Cost of Operations}}$	Describes the relationship between the Total Costs Not Assigned to Programs and the Net Cost of Operations. Indicates what percentage Net Cost of Operations is not directly accounted for in an entity program.
8	Return on Net Cost	$\frac{\text{Net Result of Operations}}{\text{Net Cost of Operations}}$	Describes the relationship between the Net Results of Operations and the Net Cost of Operations. Indicates the return received on the Net Cost of Operations in terms of the Net Results of Operations.
9	Return on Appropriated Funds	$\frac{\text{Net Result of Operations}}{\text{Appropriations Used}}$	Describes the relationship between the Net Results of Operations and the Appropriations Used. Provides an indication of the return on the Appropriations used by the entity in terms of the Net Results of Operations.

Figure 6.2. Possible Ratios for Assessing Operating Performance From [Ref. 8:p. 111].

Ratio Number	Proposed Ratio	Proposed Ratio Calculation	Proposed Ratio Description
1	Fixed Assets to Total Assets	$\frac{\text{PP\&E}}{\text{Total Assets}}$	Describes the relationship between PP&E (Fixed Assets) and Total Assets. Indicates the percentage of Total Assets that is made up of PP&E. Provides an indication of the capital intensity of the entity.
2	Fixed Assets to Equity	$\frac{\text{PP\&E}}{\text{Net Position}}$	Describes the relationship between PP&E (Fixed Assets) and the Net Position (Equity). Provides an indication of the extent the entity's equity is tied up in fixed assets.
3	Depreciation Rate	$\frac{\text{Depreciation}}{\text{PP\&E}}$	Describes the relationship between Depreciation and PP&E. Provides the rate of depreciation for the entity's fixed assets and a relative indication of the aggressiveness of that rate.
4	Inventory to Assets	$\frac{\text{Inventory \& Related Property}}{\text{Total Assets}}$	Describes the relationship between Inventory & Related Property and Total Assets. Provides an indication of the percentage of Total Assets tied up in Operating Materials & Supplies.
5	Depreciation to Total Cost	$\frac{\text{Depreciation Expense}}{\text{Total Cost of Operations}}$	Describes the relationship between Depreciation Expense and the Total Cost of Operations. Indicates the percentage of Total Cost of Operations that is made up of Depreciation Expense and provides an indication of the relative aggressiveness of the entity's depreciation policy.
6	Capital Investment Ratio	$\frac{\text{Change in PP\&E}}{\text{Total Assets}}$	Describes the relationship between the change in PP&E and the Total Assets of the entity. Provides a measure of the investment in capital assets of the entity.
7	Total Assets Maintenance	$\frac{\text{Total Assets}}{\text{Appropriations Used}}$	Describes the relationship between Total Assets and Appropriations Used. Provides an indication of the level of appropriations needed to maintain the level of assets used by the entity.
8	Fixed Assets Maintenance	$\frac{\text{PP\&E}}{\text{Appropriations Used}}$	Describes the relationship between PP&E (Fixed Assets) and the Appropriations Used. Provides an indication of the level of appropriations needed to maintain the level of fixed assets used by the entity.
9	Receivables Management	$\frac{\text{Total Receivables, Net}}{\text{Total Assets}}$	Describes the relationship between Total Receivables (Intragovernmental and Governmental) and Total Assets. Indicates the percentage of Total Assets made up of Entity Receivables.

Figure 6.3 Possible Ratios for Assessing Stewardship From [Ref. 8:p. 113].

This thesis will use all of Brady's possible ratios with the exception of the nine ratios addressed below. A brief discussion as to why they are being removed or modified follows.

1. Other Sources of Funds to Budgetary Resources

In Brady's ratios for budgetary integrity, this ratio (Figure 6.1:Ratio 2) is the complement of the preceding ratio, budget authority to budgetary resources (Figure 6.1:Ratio 1). The result is that the first and second ratios will always sum to 100 percent. This study will only use the budget authority to budgetary resources ratio to avoid redundancy of the measure.

2. Ratios Using Total Outlays

Brady developed four ratios under budgetary integrity using total outlays as either the numerator or denominator. Outlays are the actual payment for an obligation incurred at an earlier time. As such, they represent the final disposition of an amount already set aside through an obligation. In determining financial condition, outlays, which cross fiscal years and may be tied to obligations made years before, create a lag that may inhibit determining an entity's performance in a given year. For this reason, two of the four ratios have been excluded from this study: budget authority to total outlays (Figure 6.1:Ratio 3) and total outlays to total budgetary resources (Figure 6.1:Ratio 8).

The ratio of total outlays to total obligations incurred (Figure 6.1:Ratio 4) will be used in this thesis with a modification to use net obligations incurred vice total obligations. The difference between obligations incurred and net obligations incurred is that net obligations incurred also accounts for spending authority due to offsetting collections and adjustments, which apply against obligations incurred. Examples of offsetting collections are reimbursements and refunds for previous overpayments. The

result may signal changes in an entity's buying patterns or signal changes in bill paying tendencies.

The fourth ratio, total outlays to budget authority plus unobligated balance (beginning) minus unobligated balance (ending) (Figure 6.1:Ratio 7) will not be used in this thesis because the denominator is equal to Net Obligations Incurred; thus, the ratio is a duplicate of the total outlays to net obligations ratio.

3. Obligations Incurred to Budget Authority

Proposed as an indicator of whether an entity obligated more than it was authorized, this ratio (Figure 6.1:Ratio 5) does not recognize that obligations in a given fiscal year can be made against appropriations granted in prior years. Additionally, budget authority in a given year consists of more than just appropriations, such as revenues earned by the entity. For these reasons, this ratio will be excluded from the analysis.

4. Brady's Utilization Ratio

The utilization ratio (Figure 6.1:Ratio 9) proposed by Brady is an indicator of the amount of budget authority used as a percentage of total budgetary resources. However, total budgetary resources includes more than budgetary authority plus the beginning unobligated balance. Total budgetary resources can also include spending authority from offsetting collections, and adjustments. For this thesis, this ratio will not be used, but an alternative utilization ratio, developed during research for this study, will be introduced later in this chapter.

5. Reliance on Other Sources of Funding Ratio

With this ratio, using obligations incurred divided by budget authority (Figure 6.1:Ratio 10), Brady intended to indicate the extent to which the entity required sources

of funding other than budget authority, as a percentage of budget authority. This ratio duplicates the information provided by Brady's compliance/antideficiency ratio, which compares net obligations incurred to total budgetary resources. This thesis will use the compliance/antideficiency ratio.

6. Operating Efficiency Ratio

Under operating performance ratios, Brady proposed the operating efficiency ratio (Figure 6.2:Ratio 2), comparing net cost of operations to the entity's service base. Due to the service base not being readily available in all entities' financial statements, as well as the fact that entities do not share the same service base, this ratio will not be included in this analysis. Additionally, the use of this ratio to compare governmental agencies will not provide financial or managerial insight, as the service bases are inconsistent.

7. Return on Fixed Assets Ratio

In Brady's framework, property, plant and equipment (PP&E) is divided by net results of operations to achieve the return on an entity's fixed assets (Figure 6.2:Ratio 4). This ratio will be used, but the numerator and denominator must be reversed, with net results of operations being divided by PP&E. This makes the ratio more intuitively meaningful and is consistent with the calculation of most "return" ratios.

8. Net Cost of Operations Growth

Brady's proposed ratio for net cost of operations growth (Figure 6.2:Ratio 5) will not be used in this thesis because it is a fundamentally different ratio than the others in the framework. It measures the change in a specified line over time while the rest of the ratios measure one line item against another.

9. Depreciation Rate

Brady proposes using depreciation expense divided by PP&E (Figure 6.3:Ratio 3) to obtain the depreciation rate and indicate the entity's aggressiveness with depreciation

of PP&E. As PP&E includes land, which does not depreciate, the result of this ratio does not indicate the entity's depreciation rate. As such, this ratio will not be included in this thesis.

C. ADDITIONAL RATIOS TO BE ANALYZED

Brady's framework and Gates' *101 Business Ratios* [Ref. 16] were helpful in facilitating development of additional ratios to be included in this study. This research, conducted in conjunction with Belchoff's *Analysis of Changes in Federal Financial Statement Financial Ratios* [Ref. 34], a time-series and cross-section analysis of federal financial statements, has resulted in the following ratios being newly developed for inclusion in this thesis.

1. Utilization Ratio

An adaptation of Brady's Utilization Ratio, the following ratio describes the percentage of available resources the entity obligated during the year. Brady's ratio used budget authority over budgetary resources. Using budgetary resources less the unobligated ending balance from the Statement of Budgetary Resources ensures the inclusion of resource availability from offsetting collections and adjustments, as opposed to simply the budget authority granted for the year. Figure 6.4 illustrates this new Utilization Ratio.

$$\frac{\text{Total Budgetary Resources} - \text{Unobl Bal (End)}}{\text{Total Budgetary Resources}}$$

Figure 6.4. Utilization Ratio.

2. Self-Sufficiency Ratio

The Self-Sufficiency Ratio is calculated by dividing earned revenues by budget authority. Earned revenue represents exchange-type revenue generated through business-type transactions. Although government agencies are not intended to operate as profit centers, revenues earned in a business-like manner reduce the entity's reliance on tax dollars through appropriated funding. This ratio indicates the amount of an entity's total budget authority that is comprised of revenues earned through its business activities. The closer the ratio is to one, the less reliant the entity is on appropriated funding. Likewise, the lower the ratio, the more dependent the entity is on appropriated funds, and thus more vulnerable to fluctuations in the federal budgeting process. Figure 6.5 illustrates the Self Sufficiency Ratio.

$$\frac{\text{Earned Revenue}}{\text{Budget Authority}}$$

Figure 6.5. Self-Sufficiency Ratio.

3. Entity Liabilities to Entity Assets Ratio

The ratio of total liabilities to total assets has already been included in this thesis from the Brady framework. However, the total assets and liabilities displayed on the balance sheet include assets and liabilities that the entity does not have access to for use in their operation. These consist primarily of funds collected and held for transfer to another government agency such as the Internal Revenue Service. Assets held in a custodial manner are offset by a liability, or payable, indicating funds to be transferred at a later date. As a result, users of financial statements may be interested in and able to use for decision making the ratio of entity liabilities to entity assets, or those assets and

liabilities that the entity has control over for use in operations. This ratio will be calculated by subtracting from total liabilities the amount carried as non-entity assets and then dividing by the entity assets. The reason for subtracting the non-entity assets is that federal agencies are required to differentiate between entity and non-entity assets, but are not required to do the same for liabilities. As the carrying of a non-entity asset causes the posting of a matching liability, the calculation of non-entity liabilities is possible. Figure 6-6 illustrates the Entity Liabilities to Entity Assets Ratio.

$$\frac{\text{Total Liabilities} - \text{NonEntity Assets}}{\text{Entity Assets}}$$

Figure 6.6 Entity Liabilities to Entity Assets.

4. Total Liabilities to Net Position Ratio

Adapted from Gates' "Debt to Equity" ratio [Ref. 16:p. 55], which compares what is owed to what is owned, this ratio gives an indicator of an entity's financial position by examining those liabilities actually covered by budgetary resources. In a private business, a ratio in excess of 100 percent means that the capital provided by lenders exceeds that provided by stockholders. Owners may seek high leverage and prefer higher "Debt to Equity" ratios if the cost of borrowing is less than the return that can be earned on the borrowed funds, leading to higher returns on owner's investments. On the other hand, potential lenders prefer to see a lower ratio as assurance that the company can repay its debts. [Ref. 16:p. 55] Figure 6.7 illustrates the Covered Liabilities to Net Position Ratio.

$$\frac{\text{Total Liabilities}}{\text{Net Position}}$$

Figure 6.7. Total Liabilities to Net Position.

5. Earned Revenues to Entity Assets

Excluding assets not under an entity's control, this ratio mirrors the corporate world's "Sales to Assets" ratio. The ratio's intent is to summarize how well an entity is able to use assets under its control to generate revenues, and thus reduce its reliance on appropriated funding. Figure 6.8 illustrates the Earned Revenues to Entity Assets Ratio.

$$\frac{\text{Earned Revenues}}{\text{Entity Assets}}$$

Figure 6.8. Earned Revenues to Entity Assets.

6. Total Cost of Operations to Total Financing Ratio

Brady's proposed Net Cost of Operations to Appropriations Used Ratio (Figure 6.2:Ratio 3), while possibly useful, may be limited by the fact that it compares total cost of operations, an accrual figure, with appropriations used, a budgetary figure. This thesis will use Brady's ratio, but additionally proposes the Total Cost of Operations to Total Financing Ratio. This ratio, while still subject to the accrual and budgetary accounting mix, relates the total cost of operations to all, exchange and non-exchange, sources of funding. Figure 6.9 illustrates this ratio.

$$\frac{\text{Total Cost of Operations}}{\text{Non-Exchange Financing Sources + Earned Revenues}}$$

Figure 6.9. Total Cost of Operations to Total Financing.

7. Return on Average Net Position

The Return on Average Net Position, or Return on Net Worth, indicates the return, in terms of the net results of operations, on the entity's position. This ratio was adapted from the Return on Net Worth from Gates' *101 Business Ratios*. [Ref. 16:p. 40] Figure 6.10 illustrates the Return on Average Net Position Ratio.

$$\frac{\text{Net Results of Operations}}{\text{Average Net Position}}$$

Figure 6.10. Return on Average Net Position.

8. Fixed Assets to Entity Assets

Brady's Fixed Assets to Total Assets Ratio (Figure 6-3:Ratio 1) takes into consideration assets that are not for entity use. This lowers the ratio of fixed assets to assets which the entity has available for use. This being said, a ratio describing the fixed assets of the entity to the total entity assets will better reflect the portion of assets that are fixed. Figure 6.11 illustrates the Fixed Assets to Entity Assets Ratio.

$$\frac{\text{PP\&E}}{\text{Entity Assets}}$$

Figure 6.11. Fixed Assets to Entity Assets.

9. Inventory to Entity Assets

To coincide with Brady's ratio of inventory and related property to total assets (Figure 6.3:Ratio 4), the inclusion of inventory and related property to entity assets describes the percentage of assets useable to the entity that are made up of inventory and related property. With non-entity assets removed from the formula, it is proposed that

this ratio better indicates the amount of assets tied up in inventory and related property.

Figure 6.12 shows the Inventory and Related Property to Entity Assets Ratio.

$$\frac{\text{Inventory and Related Property}}{\text{Entity Assets}}$$

Figure 6.12. Inventory to Entity Assets.

10. Capital Investment Ratio II (Entity Assets)

As previous discussed, a better measure of stewardship for an entity should include only assets within the entity's control. Brady proposed a Capital Investment Ratio (Figure 6.3:Ratio 6) using total assets as the denominator. To parallel Brady's Capital Investment Ratio, the following ratio compares the change in plant, property and equipment to entity assets, as non-entity assets are not for the agency's use and only serve to lower the percentage of capital investment. Figure 6-13 illustrates the Capital Investment Ratio II (Entity Assets).

$$\frac{\text{Change in PP\&E}}{\text{Entity Assets}}$$

Figure 6.13. Change in PP&E to Entity Assets.

11. Entity Assets Maintenance

To describe the amount of appropriations used to maintain an entity's assets, the Entity Assets Maintenance Ratio, or entity assets over appropriations used, parallels Brady's Total Assets Maintenance Ratio (Figure 6.3:Ratio 7), but removes those assets not for use by the entity. Figure 6-14 displays the Entity Assets Maintenance Ratio.

$$\frac{\text{Entity Assets}}{\text{Appropriations Used}}$$

Figure 6.14. Entity Assets to Appropriations Used.

12. Entity Receivables Management

In order to remove those accounts receivables that are non-entity, an alternative to Brady's Receivables Management Ratio (Figure 6.3:Ratio 9) is proposed which divides net accounts receivable (assets for use by entity) by entity assets. Figure 6-15 illustrates the Entity Receivables Management Ratio.

$$\frac{\text{Accounts Receivable, Net (Assets for Use by Entity)}}{\text{Entity Assets}}$$

Figure 6.15. Entity Receivables Management.

13. Non-Entity Asset Management

The final ratio proposed for addition is the Non-Entity Assets to Total Assets Ratio. This ratio reflects assets held for "custodial activities" versus "operating activities" and indicates the percentage of an entity's total assets that are being held for transfer to other entities. The larger this ratio is, the less one can rely on it, as it comes to reflect total liabilities divided by total assets, due to the inclusion of a large figure for assets that are not for use by the reporting entity. Figure 6.16 illustrates the Non-Entity Assets to Total Assets Ratio.

$$\frac{\text{Change in PP\&E}}{\text{Entity Assets}}$$

Figure 6.16. Non-Entity Assets to Total Assets.

E. RATIOS TO BE USED IN DETERMINING WHETHER DIMENSIONS OF FINANCIAL CONDITION EXIST IN THE FEDERAL GOVERNMENT

Figure 6.17 lays out in table format the ratios to be used in this study. The objectives of federal financial reporting, as listed in SFFAC Number 1 and in Brady's framework, have not been included in Figure 6.17 as it is the intent of this study to attempt to determine empirically the underlying dimensions of financial condition in the federal government.

Ratio Number	Ratio	Ratio Calculation
1	Budget Authority to Budgetary Resources	$\frac{\text{Budget Authority}}{\text{Total Budgetary Resources}}$
2	Utilization	$\frac{\text{Total Budgetary Resources} - \text{Unobligated Balance (End)}}{\text{Total Budgetary Resources}}$
3	Self-Sufficiency	$\frac{\text{Earned Revenues}}{\text{Budget Authority}}$
4	Total Outlays to Obligations Incurred, Net	$\frac{\text{Total Outlays}}{\text{Obligations Incurred, Net}}$
5	Compliance/Antideficiency	$\frac{\text{Obligations Incurred, Net}}{\text{Total Budgetary Resources}}$
6	Percentage of Uncovered Liabilities	$\frac{\text{Total Liabilities Not Covered by Budgetary Resources}}{\text{Total Liabilities}}$
7	Liabilities to Assets	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$
8	Entity Liabilities to Entity Assets	$\frac{\text{Total Liabilities} - \text{Non-Entity Assets}}{\text{Entity Assets}}$
9	Total Liabilities to Net Position	$\frac{\text{Total Liabilities}}{\text{Net Position}}$
10	Earned Revenues to Entity Assets	$\frac{\text{Earned Revenues (Assigned \& Not Assigned to Programs)}}{\text{Entity Assets}}$
11	Net Cost of Operations to Appropriations	$\frac{\text{Net Cost of Operations}}{\text{Appropriations Used}}$
12	Total Cost of Operations to Total Financing	$\frac{\text{Total Cost of Operations}}{\text{Non-Exchange Financing} + \text{Earned Revenue}}$
13	Return on Fixed Assets	$\frac{\text{Net Results of Operations}}{\text{Plant, Property \& Equipment}}$
14	Costs Not Assigned to Programs to Program Costs	$\frac{\text{Total Costs Not Assigned to Programs}}{\text{Total Program Costs}}$
15	Costs Not Assigned to Programs to Net Cost of Operation	$\frac{\text{Total Costs Not Assigned to Programs}}{\text{Net Cost of Operations}}$
16	Return on Net Costs	$\frac{\text{Net Results of Operations}}{\text{Net Cost of Operations}}$
17	Return on Appropriated Funds	$\frac{\text{Net Results of Operations}}{\text{Appropriations Used}}$
18	Return on Net Worth	$\frac{\text{Net Results of Operations}}{\text{Average Net Position}}$
19	Fixed Assets to Total Assets	$\frac{\text{Plant, Property \& Equipment}}{\text{Total Assets}}$
20	Fixed Assets to Entity Assets	$\frac{\text{Plant, Property \& Equipment}}{\text{Entity Assets}}$
21	Fixed Assets to Net Position	$\frac{\text{Plant, Property \& Equipment}}{\text{Net Position}}$
22	Inventory to Assets	$\frac{\text{Inventory and Related Property}}{\text{Total Assets}}$
23	Inventory to Entity Assets	$\frac{\text{Inventory and Related Property}}{\text{Entity Assets}}$
24	Depreciation to Total Costs	$\frac{\text{Depreciation Expense}}{\text{Total Cost of Operations}}$
25	Capital Investment	$\frac{\text{Change in Plant, Property \& Equipment}}{\text{Total Assets}}$
26	Capital Investment II (Entity)	$\frac{\text{Change in Plant, Property \& Equipment}}{\text{Entity Assets}}$
27	Total Assets Maintenance	$\frac{\text{Appropriations Used}}{\text{Total Assets}}$
28	Fixed Assets Maintenance	$\frac{\text{Plant, Property \& Equipment}}{\text{Appropriations Used}}$
29	Receivables Management	$\frac{\text{Total Receivables, Net}}{\text{Total Assets}}$
30	Entity Receivables Management	$\frac{\text{Accounts Receivable, Net (For Entity Use)}}{\text{Entity Assets}}$
31	Non-Entity Asset Management	$\frac{\text{Non-Entity Assets}}{\text{Total Assets}}$

Figure 6.17. Ratios to be Used in this Study.

THIS PAGE INTENTIONALLY LEFT BLANK

VII. ANALYSIS OF FEDERAL FINANCIAL RATIOS

The primary objective of this chapter is to present the results of the factor analysis of the computed ratios and to answer the primary and secondary research questions. The chapter will begin by discussing data collection, ratio calculation and procedures used to ensure suitable financial data were used in the factor analysis. A discussion of the factor analysis procedure will include steps involved and an explanation of the concepts behind the outputs to be used in this thesis. Finally, the factor analysis outputs will be interpreted to answer the primary and secondary thesis questions.

A. DATA AND TIME PERIOD

Financial statement data were collected for the twenty-four executive departments and agencies submitting year-end Accountability Reports. Collection was conducted primarily through the Internet with those not available online being received by mail from the individual agencies. The time period for data was fiscal years 1998 through 2000. The fact that all departments and agencies used different reporting standards prior to 1998 prohibited use of earlier data. Although attempts were made to tie data from pre-1998 statements to the new standards, time and statement availability precluded this effort. Of the 1998 through 2000 statements, seventy of seventy-two reports were gathered. Fiscal year 2000 statements were not received from the Departments of State and Justice. Appendix A displays the line items collected from the gathered statements.

B. SELECTING RATIOS

As discussed in Chapter VI, the ratio framework used in this study consisted of ratios gathered from Brady's framework [Ref. 8] and ratios developed in conjunction with Belchoff's *Analysis of Changes in Federal Financial Statement Financial Ratios*

[Ref. 34]. Ratios were originally grouped by the first three objectives of federal financial reporting found in SFFAC Number 1: budgetary integrity; operating performance; assessing stewardship. In the analysis performed later in this chapter, these categories were dropped, as the objective of this study is to develop an empirically based framework for understanding financial ratios within the federal government.

It is inevitable that the ratios selected for study will drive and influence the results obtained through factor analysis. "Having too many or too few ratios of a particular type will bias the analysis toward finding or not finding a particular factor or dimension." [Ref. 26:p. 9] Using all the ratios one could think up for a particular data set would ultimately result in the inclusion of meaningless ratios. Additionally, research conducted with Belchoff ensured that Brady's framework was not simply copied, but that ratios were looked at for logical flow and to ensure a balance across different kinds of ratios. The values for the ratios calculated from the data obtained can be found in Appendix B.

C. DATA TRANSFORMATION

The ratios developed from the gathered data displayed non-normality and were skewed when graphed as a histogram with a normal curve overlaid. Transformation was necessary to ensure that extreme outliers did not drive the results. The first step of transformation was the ordinal ranking of each ratio calculated. Second, the ordinal ranks were normalized. The result of this two-step process ensured the retention of the relative order of ratio values, but removed the extreme values while deleting none.

D. FACTOR ANALYSIS

The ratio classification schemes developed in this thesis were derived using a statistical procedure called factor analysis, performed in the SPSS for Windows software package. Factor analysis is a technique used to identify factors, or conditions, that

statistically explain the variation and covariation among measures. [Ref. 35:p. 292] The goal of factor analysis is to reduce a large set of overlapping measured variables to a much smaller set of factors in order to define dimensions underlying existing measurements. [Ref. 35:p. 293]

Factor analysis requires two stages, factor extraction and factor rotation. The first stage makes an initial decision about the number of factors underlying the set of measures. The first extracted factor accounts for the largest amount of the variability among the measured variables, the second factor the next most variability, and so on. The variability explained by a factor is called an eigenvalue. The number of factors to extract can be determined either by the absolute value of the eigenvalues or by the relative magnitudes of the eigenvalues. In this study, factors resulting in eigenvalues of one or greater were extracted. An eigenvalue greater than one means the factor explains more variability in the set of ratios than any one ratio explains alone. Second, the factors are rotated to make them more meaningful. This study used the varimax rotational method, or orthogonal rotation.

The rotational step results in factor loadings for the identified factors or dimensions. Factor loadings are correlations between the individual ratios and the dimensions. An analysis of the factor loadings will identify which ratio or ratios are most associated with the given factor.

Communality estimates indicate the amount of the variance in an individual ratio explained by the set of factors. If the communality is high for a given ratio, confidence that the information contained by the variable, or ratio, is reflected by the given set of factors is evident.

The underlying assumption of factor analysis is that the measured variables are linearly correlated to the factors. A violation of this assumption would occur if the measured items vary in skewness, hence the reason for normalizing the rankings of the variables.

Factor analysis was conducted on the ratios calculated for all agencies over the three year time period to address the research questions.

E. ANALYSIS AND FINDINGS

The first step in the analysis was performed to address the main thesis question of whether dimensions of financial condition exist within the federal government. A factor analysis was conducted on all 31 ratios from all the reporting agencies for 1998-2000 with the exception of fiscal year 2000 for the Departments of State and Justice, whose data were not available at the time of analysis. This resulted in three years of data times 24 agencies less the two agency reports not received for 2000 for a total of 70 observations. All factors with eigenvalues greater than one were extracted, resulting in nine identifiable dimensions. Figure 7.1 provides abbreviations used for the various ratio components. Table 7.1 displays the factor pattern that resulted.

Component	Abbreviation
Accounts Receivable, Entity, Net	TRE
Appropriations Used	AU
Average Net Position	ANP
Budget Authority	BA
Change in Plant, Property and Equipment	CPPE
Depreciation Expense	DE
Entity Assets	EA
Inventory and Related Property	IRP
Liabilities Not Covered by Budgetary Resources	LNC
Net Cost of Operations	NCO
Net Position	NP
Net Result of Operations	NRO
Non-Entity Assets	NEA
Obligations Incurred, Net	OIN
Plant, Property and Equipment	PPE
Total Accounts Reveivable, Net	TRN
Total Assets	TA
Total Budgetary Resources	BR
Total Budgetary Resources - Unobligated Balance (End)	BRUBE
Total Cost of Operations	TCO
Total Costs Not Assigned to Programs	TCNA
Total Financing + Earned Revenue	TFER
Total Liabilities	TL
Total Liabilities Less Non-Entity Assets	TLNEA
Total Outlays	TO
Total Program Costs	TPC

Figure 7.1 Ratio Component Abbreviations.

Ratio	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9
PPE_EA	* 0.896	0.023	0.261	0.074	0.137	0.084	-0.114	-0.127	-0.033
IRP_EA	* 0.895	-0.130	-0.122	-0.155	0.016	-0.045	0.126	0.109	-0.145
IRP_TA	* 0.889	-0.140	-0.122	-0.172	-0.009	0.034	0.167	0.051	-0.149
PPE_TA	* 0.885	0.022	0.251	0.063	0.098	0.174	-0.063	-0.183	-0.008
DE_TCO	* 0.863	0.008	0.199	0.215	0.092	0.033	-0.105	0.092	0.140
NRO_PPE	-0.140	* 0.848	0.007	0.097	-0.133	0.087	0.038	-0.069	-0.013
NRO_AU	0.046	* 0.836	0.254	-0.001	-0.113	0.039	-0.073	-0.135	0.338
TCO_TFER	0.069	* -0.768	-0.093	0.037	-0.071	0.336	0.345	-0.003	-0.143
NRO_NCO	-0.124	* 0.744	0.020	0.337	-0.200	-0.144	0.129	0.215	-0.074
NRO_ANP	0.205	* 0.565	0.123	0.000	0.027	0.118	0.507	0.194	-0.091
CPPE_TA	0.086	0.198	* 0.918	0.121	0.132	0.116	-0.087	-0.064	-0.039
CPPE_EA	0.094	0.211	* 0.914	0.119	0.162	0.046	-0.110	-0.027	-0.064
TO_OIN	-0.245	0.242	* -0.619	0.126	0.363	-0.097	0.011	0.038	-0.259
OIN_BR	-0.006	0.195	0.066	* 0.852	-0.113	-0.068	0.200	0.034	-0.268
BA_BR	-0.158	0.233	0.006	* 0.764	-0.027	-0.137	0.286	0.002	-0.195
BRUBE_BR	0.324	-0.171	0.174	* 0.724	0.154	-0.026	-0.289	-0.173	-0.055
ER_EA	0.088	-0.064	0.180	0.064	* 0.829	0.246	-0.138	-0.043	-0.034
ER_BA	0.126	-0.242	0.106	-0.084	* 0.763	0.326	-0.166	-0.056	0.258
LNC_TL	0.221	-0.053	-0.048	-0.047	* 0.570	-0.397	0.439	0.185	0.013
TL_TA	0.077	-0.442	-0.229	-0.440	* 0.500	-0.044	0.127	0.204	-0.350
TLNEA_EA	0.065	-0.449	-0.231	-0.442	* 0.481	0.034	0.161	0.148	-0.349
TRE_EA	0.145	-0.032	0.130	-0.083	0.162	* 0.912	0.056	-0.001	0.071
TRN_TA	0.100	-0.028	0.095	-0.109	0.145	* 0.910	0.014	0.032	0.082
NEA_TA	0.283	0.235	0.148	-0.257	0.060	* -0.366	-0.284	0.304	-0.245
TL_NP	-0.156	0.168	0.139	-0.099	-0.068	0.033	* -0.734	0.348	-0.128
NCO_AU	-0.138	0.122	-0.101	0.221	-0.265	0.173	* 0.734	0.201	0.030
PPE_NP	0.322	0.262	0.467	0.184	-0.015	0.108	* -0.540	0.018	0.223
TCNA_NCO	-0.048	-0.026	-0.024	-0.029	0.021	-0.004	0.038	* 0.940	0.085
TCNA_TPC	0.027	-0.013	-0.086	-0.032	0.007	0.005	-0.031	* 0.923	0.139
EA_AU	-0.088	0.088	0.018	-0.239	-0.023	0.310	0.156	0.052	* 0.849
TA_AU	-0.107	0.170	-0.004	-0.198	0.088	-0.072	-0.072	0.296	* 0.823
Eigenvalue	5.715	5.421	3.481	2.819	2.593	2.062	1.649	1.336	1.168

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 12 iterations.

Table 7.1. Rotated Component Matrix.

In Table 7.1, factors are ordered one through nine from highest to lowest eigenvalues. Eigenvalues, the variance explained by each factor, are listed at the bottom of the table. Each factor uncovers some underlying construct that manifests itself in

several different ratios. Factors one and two are dominant factors, displaying a substantially higher eigenvalue than the others. The values in the table are factor loadings, correlations of the particular ratios to the factors, resulting from factor analysis' mechanical statistical exercise. The ratios are listed in order of decreasing loading along each successive factor with an asterisk indicating loadings that tend to be significant to a particular factor. The true meaning comes from observing the loadings, interpreting the relationships between ratios and factors, and labeling each factor in terms of the underlying construct they appear to represent. [Ref. 26:p. 13]

1. What are the Fundamental Dimensions of Financial Condition in the Federal Government?

The first five ratios in Table 7.1 load most highly on Factor 1 and contain either plant, property and equipment or inventory and related property in their construction. This first factor is clearly reflecting "Capital Assets." It is interesting to note that the first four ratios (PPE_EA, IRP_EA, IRP_TA, PPE_TA) are balance sheet ratios, while the fifth (DE_TCO) is a statement of net cost ratio. The important point is that empirically all of these ratios are highly interrelated. Differences across agencies will be driven by the intensity of capital investment.

Five ratios (NRO_PPE, NRO_AU, TCO_TFER, NRO-NCO, NRO_ANP) load most heavily on Factor 2. The common element for all five is net result of operations with the factor reflecting most strongly the magnitude of net result of operations relative to other financial terms, most particularly capital assets and appropriations used. This factor is labeled "Net Result of Operations." It should be noted that the FASAB has cautioned against the use of net results of operations as a measure of performance. [Ref. 14:p. 57] This is due to the fact that, because federal agencies are not economically

independent by design, some agencies will show positive cumulative results and others, such as the Treasury Department, which issues U.S. Treasury bonds and notes, will show negative balances. Notwithstanding this caution against use as a performance measure, net results of operations can be used as a discriminator.

Factor 3 is fairly unambiguous. Two of the three ratios (CPPE_TA, CPPE_EA) incorporate the year-to-year change in plant, property and equipment as it relates to total and entity assets. The third ratio (TO_OIN) proved more difficult in attempting to tie the ratio relationship to the factor. The negative sign indicates that as the ratio increases in size it has a more negative effect on the factor. It was deduced that as total outlays increase versus net obligations, the unliquidated obligations or accounts payable decrease, thus shifting from a year-to-year change in plant, property and equipment to complete ownership of the capital asset. To use an aircraft carrier as an example, the obligation, under full funding, is incurred up front. Commissioning of the carrier signifies recognition on the balance sheet as a capital asset, although the outlays will continue against construction for up to five additional years. The resulting liquidation of the unliquidated obligation signifies the end of the theoretical year-to-year change in plant, property and equipment for this capital asset. This factor is labeled "Capital Investment."

Factor 4 is also unambiguous. The three ratios (OIN_BR, BA_BR, BRUBE_BR) are most strongly associated with Factor 4 and each involves budgetary resources. All three ratios relate directly to the statement of budgetary resources and provide an indication of the total and non-budgetary resources under the stewardship of a federal entity. Additionally, they indicate the status of budgetary resources by the proportion of

obligations incurred in a particular year against the total budgetary resources. This factor is identified as "Status of Budgetary Resources."

Factor 5 contains five ratios (ER_EA, ER_BA, LNC_TL, TL_TA, TLNEA_EA) that can be specifically broken down into earned revenues and liabilities. The problem is to identify the relationship of the five ratios as they relate to the factor. The first two ratios (ER_EA, ER_BA) are more significant to the factor than are the ratios related to liabilities. Research of the literature points to the statement of net cost as the most significant of the required entity financial statements. [Ref 5:p. 188] Unless specifically authorized by Congress, most federal departments and agencies do not have the authority or responsibility for earning revenues and fees for goods and services provided. FASAB views the statement of net cost as specifically meeting the federal financial objective of providing information that helps the various users of financial statements determine the costs, and offsetting exchange revenues earned, for providing specific programs and services. [Ref 5:p. 188] The statement displays the total costs less all revenues attributed to a program and permitted to be offset against program costs, allowing the reader to view how an entity is able to earn revenue and therefore rely less on sources other than exchange revenues such as appropriations, taxes, etc., to offset the costs of programs and activities.

The latter three ratios (LNC_TL, TL_TA, TLNEA_EA), while having a less significant effect on the factor, reflect the entity's reliance on earned revenues as liabilities increase, whether the liabilities are covered by budgetary resources or not. The relationship between the capability of earning revenues and incurred operating liabilities

is an indicator of an entity's self-sufficiency or non-reliance entirely on appropriated funding. This factor is identified as "Earned Revenues."

Factor 6 is fairly straightforward. Two of the three ratios (TRE_EA, TRN_TA) identify with accounts receivable from a total and entity position. The third ratio (NEA_TA) focuses the factor specifically to entity receivables by negatively relating the proportion of non-entity assets to total assets to the factor. Thus, this factor is labeled "Entity Receivables Intensity."

Factor 7 proved the most difficult to analyze. While further research is required to determine the underlying construct that manifests itself in the ratios included, an attempt is made here to decipher the relationship of the ratios to the factor. The following explanation draws on research conducted from the *Federal Accounting Handbook: Policies, Standards, Procedures, Practices*. [Ref. 5] Also of note is the fact that the ratio loadings of the two ratios of significance to the factor are the lowest loadings of any significant ratio to a particular factor.

The two most significant ratios under this factor (TL_NP, NCO_AU) loaded with the same significance, but their effects on the factor as the ratios increased in magnitude were opposite. The first ratio (TL_NP) has a negative relationship to the factor as the ratio grows larger. The relationship of total liabilities to net position, using the accounting equation assets equal liabilities plus net position, would indicate that as total liabilities increase in relation to net position, the net position of the entity would decrease even to the point of being negative. Tying this relationship to the factor would indicate net position in the underlying construct.

But the second ratio (NCO_AU) has a positive relationship to the factor. Logically, as net cost of operations increases as a percentage of appropriations used, net results of operations and net position should become more negative. But the positive factor loading suggests a positive relationship between the ratio and net position. Thus, the empirical relationships observed are difficult to reconcile. A possible explanation rests on the components of net position. Research reveals net position consists of three items:

- Unexpended appropriations – appropriations not yet obligated/expended and undelivered orders. [Ref. 5:p. 187]
- Cumulative results of operations – amounts accumulated over the years by an entity from financing sources less expenses and losses. [Ref. 5:p. 187]
- Residual balance – appropriated capital provided by Congress; invested capitalized assets or expended appropriations for purchased goods or property. [Ref. 5:p. 187]

With these definitions in mind, it can be argued that the two ratios (TL_NP, NCO_AU) may be related to unexpended appropriations as a proportion of net position. Regarding the first ratio (TL_NP), as total liabilities increases in proportion to net position, a decrease in the amount of unexpended appropriations results due to additional obligations incurred. The result, even if net position remains the same due to increases in other sources of financing or plant, property and equipment, is a decrease in the proportion of unexpended appropriations to net position.

Regarding the second ratio (NCO_AU), as net cost of operations increases in proportion to appropriations used, a greater reliance on other sources of financing is created, thereby reducing the net results of operations and the cumulative results portion of net position. The result, due to the decrease in the cumulative results of operations

portion of net position, is an increase in the proportion of unexpended appropriations comprising net position.

The third ratio associated with this factor (PPE_NP), although not as significant as the previous two, additionally relates to the proportion of unexpended appropriations to net position. If net position remained the same for a given fiscal year, but unexpended appropriations were used to procure plant, property and equipment, the proportion of net position made up of unexpended appropriations would decrease. This would agree with the negative relationship of the ratio (PPE_NP) to the factor. Using this line of reasoning, the factor is labeled, "Unexpended Appropriations." As stated at the beginning of the discussion on Factor 7, this relationship requires further research and deliberation.

Factor 8 contains only two ratios (TCNA_NCO, TCNA_TPC), but both are significantly related to the factor. Note that in Table 7-1 these two ratios were the highest correlated ratios to a particular factor. Costs not assigned to programs consist of management costs not attributable, allocable or assignable on a cause and effect basis to programs but nonetheless necessary for performing programs and activities. Per FASAB, these high level general management and administrative support costs are not to be buried in the reporting entity's programs or organizational costs and thus are given their own category, costs not assigned to programs, for separate identification and display. [Ref. 5:p. 190] The two ratios compare these costs not assigned as a percentage of net cost of operations and total program costs. This factor is labeled "Costs Not Assigned."

Of interest is the fact that during data collection, twenty-four of the seventy statements of net cost recorded zero costs not assigned to programs, indicating either no

costs that could not be attributed, allocated or assigned to entity programs or the fact that the costs have been buried in the programs and activities. The differing interpretation of accounting concepts by the various agencies and departments may account for this.

The two ratios (EA_AU, TA_AU) relating to Factor 9 positively affect the factor as entity or total assets increase in magnitude to appropriations used. As assets increase, the maintenance of those assets, whether replenishing operating inventories or performing upkeep of capital assets, requires increased appropriations. Thus, this factor indicates the amount of appropriations required to maintain working inventories and capital assets. This factor is labeled "Asset Maintenance."

Table 7.2 displays the communality estimates for the ratios, which measures the proportion of each ratio's variance that is explained by the nine factors collectively.

Collectively, the communality estimates total 26.25, indicating that the factors explain 85 percent ($26.25/31$) of the variance in the 31 ratios. Two ratios (NEA_TA, NRO_ANP) appear to contain some information not fully incorporated in the nine dimensions of financial condition explained. If the factor analysis procedure were permitted to extract additional factors, these two ratios would most likely load more heavily on the additional factors. But these additional factors have eigenvalues less than one, implying less information in the factors than in the ratios themselves. In short, the finding is that the nine factors reflect well the information, variance, contained in the full set of ratios. The findings to this point are:

- There are nine fundamental conditions of financial condition that underlie financial ratios within the federal government.
- Individual ratios tend to be associated with specific dimensions.

- The dimensions reflect well the information contained in the larger set of ratios.
- The dimensions are generally interpretable in terms of understandable federal financial accounting concepts such as capital intensity, net results of operations, budgetary resourcing, etc.

What ratios are most representative of the fundamental dimensions of financial condition?

Communalities	
	Extraction
BA_BR	0.803
BRUBE_BR	0.830
ER_BA	0.878
TO_OIN	0.729
OIN_BR	0.898
LNC_TL	0.766
TL_TA	0.879
TLNEA_EA	0.855
TL_NP	0.764
ER_EA	0.818
NCO_AU	0.773
TCO_TFER	0.862
NRO_PPE	0.780
TCNA_TPC	0.882
TCNA_NCO	0.898
NRO_NCO	0.812
NRO_AU	0.918
NRO_ANP	0.694
PPE_TA	0.928
PPE_EA	0.932
PPE_NP	0.777
IRP_TA	0.909
IRP_EA	0.907
DE_TCO	0.880
CPPE_TA	0.949
CPPE_EA	0.947
TA_AU	0.863
EA_AU	0.918
TRN_TA	0.889
TRE_EA	0.913
NEA_TA	0.594
Final Communality Estimates	26.245
Percentage of 31 Ratios	0.847
Extraction Method: Principal Component Analysis.	

Table 7.2 Communality Estimates.

This question can also be answered from the factor pattern in Table 7.1. Ratios with high loadings on a factor are most highly correlated with, and hence representative of, the factor. If several highly correlated ratios load approximately the same on a given factor, each could be a candidate for representation. Selecting the highest loading ratios to their particular factors from Table 7.1 results in the ratios contained in Figure 7.2.

Factor	Dimension	Ratio(s)	Common Name
1	Capital Assets	PPE_TA	Plant, Property and Equipment to Entity Assets
2	Net Results of Operations	NRO_PPE	Net Results of Operations to Plant, Property and Equipment
3	Capital Investment	CPPE_TA	Change in Plant, Property and Equipment to Total Assets
4	Status of Budgetary Resources	OIN_BR	Obligations Incurred, Net to Budgetary Resources
5	Earned Revenues	ER_EA	Earned Revenue to Entity Assets
6	Entity Receivables Intensity	TRE_EA	Total Receivables, Entity to Entity Assets
7	Unexpended Appropriations	TL_NP	Total Liabilities to Net Position
8	Costs Not Assigned to Programs	TCNA_NCO	Total Costs Not Assigned to Programs to Net Cost of Operations
9	Asset Maintenance	EA_AU	Entity Assets to Appropriations Used

Figure 7.2. Ratios Most Representative of Fundamental Dimensions of Financial Condition in the Federal Government.

2. How Many Ratios Should be Considered when Conducting an Analysis?

There are dozens of ratios that can be computed from a single set of financial statements. The key is to find the ones that are helpful in a given situation. When conducting an analysis, the particular type of investigation being made should drive which, and how many, ratios should be calculated and examined. The findings of this thesis are that within the nine factors determined, the nine ratios in Figure 7-2 provide representation of the entire set of factors. If the goal is to conduct a complete analysis of a set of federal financial statements, the nine may be used or act as a guide to development of further ratios. But, if the intention is to look only at a particular area such as receivables or net results of operations, then only those ratios representative of the factor being examined should be used for analysis or further ratio development. The

type of analysis will determine the number of ratios to use. The number of ratios provided to or included by a user of financial statement information should be kept to a minimum. Note that the findings in this thesis indicate nine ratios representative of the fundamental dimensions of financial condition derived from a framework of thirty-one ratios. Further studies could develop ratios in addition to the ones discussed in this thesis. This thesis provides dimensions to be considered when developing an analysis of federal financial statements.

3. Which Ratios Should be Considered?

As stated in the previous paragraph, the ratios to be considered in conducting an analysis of federal financial statements are dependent on the breadth and scope of the analysis in question. Figure 7.2 lists the ratios that may be considered when developing or conducting an analysis of federal financial statements.

4. How are Financial Ratios Interrelated?

Financial ratios should be logically interrelated. While certain "psuedo" ratios may be mathematically related to real ratios, they may not measure any underlying business realities. While ratios are often classified into various groups, which presumably show the connections among the ratios, the empirical approach using factor analysis provides a testing of the relationships and grounds the pattern in real world data. Although factor analysis does not solve all the problems and questions in an exploration of this type, it is more defensible than ad hoc groupings. The discussion of the interrelationships of the highly correlated ratios to the respective factors under the primary thesis question describes the interrelationship of the ratios to underlying constructs.

5. Which Ratios are Redundant?

The analysis of Brady's framework and the additional ratios developed through literature research attempted to avoid redundant ratios. Redundant ratios do not follow the maxim that users of financial statement information should keep the number of ratios to a minimum. The inclusion of ratios which measured a financial term against apparently like items such as entity assets and total assets was to attempt to better identify the underlying constructs. The results of the factor analysis indicate that the degree of difference is not significant and that two ratios measuring an item against entity assets or liabilities and total assets or liabilities are basically redundant. In the case where this is apparent, the ratio that loads more heavily on a particular factor was used.

THIS PAGE INTENTIONALLY LEFT BLANK

VIII. CONCLUSIONS

The results and interpretation of factor-analyzed ratios pertaining to federal financial statements suggest the following:

- **Dimensions:** There are nine fundamental dimensions of financial condition that underlie the numerous financial ratios that can be calculated from federal government financial statements. The dimensions are comprehensive in that they reflect the information, the variance, existing in the larger set of framework ratios. The specific dimensions are individually unique in that they are conceptually and statistically distinct from one another.
- **Representative Ratios:** Individual ratios can be selected to represent or measure each dimension. These ratios coincide well, both conceptually and statistically, with the basic dimensions.

By themselves, the nine financial dimensions can provide a framework for organizing a financial analysis of federal financial statements or further research focusing on the financial condition within federal agencies. While financial analysis is performed at numerous and diverse entities within the government, the implied meaning of the taxonomy resulting from this thesis is that there are ratios that are functionally similar to one another. An analysis of federal financial statements might use this taxonomy as an organizing framework for selecting a set of ratios that is both comprehensive and sufficient. The identification of these fundamental dimensions of financial condition can lead to a more efficient utilization of ratio information.

In summary, the performance of financial statement analysis in the federal government and future research into the emerging discipline of federal financial accounting can benefit from an understanding of the basic dimensions underlying financial ratios and the organizing framework implied by those dimensions.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A. FEDERAL FINANCIAL STATEMENT DATA

Appendix A contains the line item data for individual federal financial statements.

Data is arranged by department or agency and for each of the three years collected.

Agency	Year	Budgetary Authority	Total Budgetary	Earned Revenue	Total Outlays	Obligations Incurred	Obligations Incurred,	BA Unobligated
Department of Defense	1998	320,933,438,000	604,036,800,000	37,105,478,000	310,399,478,000	423,049,039,000	306,451,473,000	173,385,002,000
Department of Defense	1999	334,004,300,000	628,451,600,000	32,478,600,000	310,986,100,000	433,068,000,000	315,968,200,000	183,463,800,000
Department of Defense	2000	353,856,000,000	656,072,800,000	27,411,400,000	336,630,200,000	454,062,000,000	337,300,900,000	192,551,900,000
Department of Energy	1998	17,439,000,000	24,553,000,000	5,540,000,000	17,027,000,000	21,921,000,000	17,199,000,000	2,823,000,000
Department of Energy	1999	18,558,000,000	25,630,000,000	5,715,000,000	17,184,000,000	22,488,000,000	17,558,000,000	2,716,000,000
Department of Energy	2000	19,956,000,000	27,063,000,000	6,465,000,000	17,487,000,000	23,840,000,000	17,906,000,000	3,476,000,000
Department of Justice	1998	18,926,937,000	25,917,006,000	2,314,942,000	16,499,404,000	22,270,747,000	18,495,680,000	3,660,669,000
Department of Justice	1999	19,719,497,000	27,847,525,000	2,497,377,000	18,704,141,000	25,023,606,000	20,307,532,000	3,624,845,000
Department of Justice	2000							
Department of Treasury	1998	393,097,000,000	445,236,000,000	9,753,000,000	387,548,000,000	397,514,000,000	387,782,000,000	42,535,000,000
Department of Treasury	1999	320,513,000,000	369,868,000,000	11,368,000,000	314,914,000,000	324,108,000,000	314,327,000,000	43,430,000,000
Department of Treasury	2000	391,309,000,000	588,428,000,000	10,859,000,000	388,109,000,000	517,945,000,000	385,343,000,000	52,040,000,000
Federal Emergency Management Agency	1998	2,866,879,000	9,165,733,000	1,335,798,000	2,235,137,000	6,923,982,000	4,935,194,000	4,595,901,000
Federal Emergency Management Agency	1999	3,300,581,000	8,348,923,000	1,479,992,000	4,092,291,000	6,508,398,000	4,125,071,000	3,052,320,000
Federal Emergency Management Agency	2000	4,500,096,000	6,607,725,000	1,565,697,000	3,067,776,000	4,653,800,000	2,482,379,000	1,810,137,000
Nuclear Regulatory Commission	1998	481,125,000	525,299,063	462,337,607	496,441,447	490,118,464	475,314,794	29,370,393
Nuclear Regulatory Commission	1999	472,776,847	520,202,459	445,026,325	482,244,360	486,308,618	474,063,605	35,180,599
Nuclear Regulatory Commission	2000	471,575,231	515,910,686	463,037,588	483,943,370	485,533,580	471,404,965	29,893,840
Department of Commerce	1998	4,428,846,000	6,644,949,000	1,457,555,000	4,222,560,000	6,048,286,000	4,342,286,000	621,487,000
Department of Commerce	1999	5,538,341,000	8,930,426,000	1,578,729,000	5,155,678,000	7,999,273,000	5,377,841,000	660,524,000
Department of Commerce	2000	8,977,134,000	12,114,185,000	1,620,654,000	7,953,681,000	10,797,490,000	8,328,541,000	874,550,000
Department of Health and Human Services	1998	452,367,000,000	829,762,000,000	22,412,000,000	435,648,000,000	453,678,000,000	443,153,000,000	167,038,000,000
Department of Health and Human Services	1999	484,689,000,000	483,643,000,000	23,731,000,000	451,783,000,000	470,749,000,000	460,952,000,000	176,537,000,000
Department of Health and Human Services	2000	521,265,000,000	509,270,000,000	48,096,000,000	480,972,000,000	488,872,000,000	490,208,000,000	12,815,000,000
Department of Labor	1998	42,367,268,000	107,511,777,000	2,390,398,000	31,596,371,000	35,323,381,000	33,291,066,000	63,278,611,000
Department of Labor	1999	42,315,163,000	116,633,911,000	2,421,893,000	33,387,341,000	36,964,273,000	34,731,568,000	72,188,395,000
Department of Labor	2000	40,109,628,000	36,866,718,000	2,526,133,000	32,654,192,000	34,401,603,000	32,311,026,000	3,450,786,000
Department of Veterans Affairs	1998	45,109,000,000	71,128,000,000	3,663,000,000	42,209,000,000	51,094,000,000	42,631,000,000	21,007,000,000
Department of Veterans Affairs	1999	47,609,000,000	75,695,000,000	3,745,000,000	44,619,000,000	54,250,000,000	44,382,000,000	20,034,000,000
Department of Veterans Affairs	2000	48,667,000,000	78,569,000,000	4,260,000,000	48,380,000,000	57,455,000,000	48,560,000,000	21,446,000,000
General Services Administration	1998	419,000,000	17,193,000,000	12,117,000,000	1,205,000,000	13,827,000,000	-9,000,000	3,129,000,000
General Services Administration	1999	460,000,000	19,249,000,000	13,566,000,000	-87,000,000	15,684,000,000	992,000,000	4,395,000,000
General Services Administration	2000	210,000,000	20,171,000,000	14,673,000,000	117,000,000	18,072,000,000	-548,000,000	3,769,000,000
Office of Personnel Management	1998	76,513,064,000	87,186,418,000	66,874,187,000	46,400,392,000	62,358,789,000	46,812,518,000	23,792,539,000
Office of Personnel Management	1999	78,743,747,000	90,219,102,000	69,727,041,000	47,571,110,000	64,678,178,000	47,749,501,000	24,552,056,000
Office of Personnel Management	2000	76,136,000,000	93,298,000,000	72,692,000,000	48,810,000,000	67,286,000,000	49,207,000,000	24,541,000,000
Department of Agriculture	1998	75,016,855,000	105,777,004,000	9,059,970,000	57,562,213,000	80,127,584,000	57,805,817,000	25,193,525,000
Department of Agriculture	1999	89,528,000,000	120,095,000,000	8,182,000,000	65,896,000,000	96,339,000,000	70,778,000,000	25,635,000,000
Department of Agriculture	2000	142,425,000,000	130,536,000,000	10,139,000,000	78,824,000,000	105,923,000,000	78,754,000,000	26,449,000,000
Department of Housing and Urban Development	1998	32,607,000,000	87,718,000,000	4,874,000,000	34,171,000,000	43,454,000,000	25,237,000,000	44,853,000,000
Department of Housing and Urban Development	1999	34,252,000,000	97,080,000,000	3,960,000,000	35,378,000,000	52,257,000,000	29,166,000,000	44,175,000,000
Department of Housing and Urban Development	2000	27,842,000,000	85,523,000,000	4,936,000,000	30,060,000,000	41,328,000,000	25,045,000,000	44,783,000,000
Department of State	1998	6,329,501,000	8,335,588,000	2,386,607,000	5,059,258,000	7,400,865,000	5,349,518,000	870,240,000
Department of State	1999	9,211,787,000	11,331,671,000	2,390,670,000	6,251,902,000	9,187,574,000	6,915,587,000	934,723,000
Department of State	2000							
Agency for International Development	1998	6,368,000,000	8,602,000,000	52,000,000	5,028,000,000	6,805,000,000	5,104,000,000	1,841,000,000
Agency for International Development	1999	7,282,922,000	9,255,156,000	62,399,000	5,073,430,000	7,434,832,000	5,938,924,000	1,789,481,000
Agency for International Development	2000	6,823,903,000	10,025,736,000	72,208,000	5,542,976,000	6,928,676,000	5,631,066,000	1,957,278,000
National Aeronautics and Space Administration	1998	13,649,575,000	15,319,585,000	715,407,000	14,206,207,000	14,254,348,000	13,624,300,000	1,067,624,000
National Aeronautics and Space Administration	1999	13,661,697,000	15,430,500,000	817,810,000	13,663,716,000	14,566,158,000	13,816,565,000	1,065,239,000
National Aeronautics and Space Administration	2000	13,554,180,000	15,184,571,000	738,499,000	13,441,625,000	14,484,100,000	13,698,424,000	964,342,000
Small Business Administration	1998	1,674,109,000	11,319,854,000	11,074,000	1,059,939,000	4,667,379,000	2,350,414,000	6,756,285,000
Small Business Administration	1999	2,102,709,000	11,264,500,000	921,694,000	912,788,000	4,223,297,000	737,588,000	6,699,756,000
Small Business Administration	2000	1,798,545,000	11,821,445,000	877,165,000	704,258,000	5,334,535,000	1,144,417,000	7,019,593,000
Department of Education	1998	49,411,474,000	70,618,783,000	2,953,254,000	42,296,789,000	57,982,169,000	47,414,991,000	12,732,595,000
Department of Education	1999	55,549,967,000	79,055,756,000	4,079,317,000	45,215,251,000	55,795,752,000	47,723,738,000	12,789,961,000
Department of Education	2000	56,900,234,000	81,267,691,000	5,088,448,000	48,508,066,000	74,707,704,000	52,791,506,000	13,864,271,000
Department of the Interior	1998	9,896,380,000	18,089,417,000	1,893,339,000	8,902,527,000	11,437,920,000	9,157,321,000	2,643,592,000
Department of the Interior	1999	10,259,314,000	18,139,428,000	2,344,274,000	10,049,766,000	12,296,818,000	10,274,691,000	3,483,856,000
Department of the Interior	2000	11,365,676,000	17,057,178,000	2,199,532,000	10,915,280,000	13,965,886,000	11,266,288,000	3,328,358,000
Department of Transportation	1998	51,175,157,000	83,271,335,000	927,194,000	39,311,362,000	46,122,245,000	40,378,077,000	47,614,843,000
Department of Transportation	1999	56,947,478,000	86,750,019,000	1,003,492,000	42,323,647,000	56,699,081,000	46,471,001,000	56,556,607,000
Department of Transportation	2000	55,921,486,000	82,485,447,000	936,158,000	46,469,457,000	59,527,412,000	51,301,039,000	69,009,874,000
Environmental Protection Agency	1998	7,564,593,000	10,507,502,000	880,258,000	6,911,606,000	8,088,063,000	7,725,996,000	2,753,665,000
Environmental Protection Agency	1999	7,858,501,000	10,553,557,000	901,203,000	7,355,104,000	8,395,010,000	7,641,068,000	2,419,409,000
Environmental Protection Agency	2000	8,266,476,000	11,084,698,000	881,984,000	8,128,852,000	8,880,002,000	8,114,992,000	2,157,547,000
National Science Foundation	1998	3,477,304,000	3,707,526,000	92,358,000	3,207,018,000	3,555,963,000	3,382,550,000	74,400,000
National Science Foundation	1999	3,736,026,000	4,021,182,000	73,193,000	3,266,839,000	3,833,575,000	3,684,735,000	151,471,000
National Science Foundation	2000	4,001,238,000	4,324,228,000	84,216,000	3,487,391,000	4,077,152,000	3,915,080,000	187,607,000
Social Security Administration	1998	510,936,000,000	1,107,904,000,000	3,184,000,000	412,547,000,000	416,963,000,000	413,901,000,000	594,399,000,000
Social Security Administration	1999	548,228,000,000	427,263,000,000	3,467,000,000	423,640,000,000	426,916,000,000	423,583,000,000	231,000,000
Social Security Administration	2000	597,909,000,000	452,120,000,000	3,905,000,000	446,065,000,000	451,779,000,000	447,876,000,000	86,000,000

Agency	Year	BA Unobligated	Total Liabilities Not	Total Liabilities	Total Assets	Entity Assets	Net Cost of Operations
		Balances - End of Period	Covered by Budgetary Resources				
Agency							
Department of Defense	1998	187,866,958,000	771,361,413,000	948,517,121,000	591,194,479,000	589,718,158,000	280,266,330,000
Department of Defense	1999	201,499,900,000	810,584,100,000	998,949,500,000	598,980,900,000	596,318,600,000	377,864,600,000
Department of Defense	2000	209,107,000,000	803,891,600,000	1,002,752,400,000	616,734,800,000	612,366,400,000	347,473,500,000
Department of Energy	1998	3,163,000,000	193,933,000,000	230,258,000,000	97,930,000,000	97,930,000,000	21,012,000,000
Department of Energy	1999	3,719,000,000	237,771,000,000	276,005,000,000	97,768,000,000	97,769,000,000	32,199,000,000
Department of Energy	2000	5,526,000,000	275,685,000,000	283,751,000,000	100,930,000,000	100,930,000,000	23,182,000,000
Department of Justice	1998	4,091,926,000	1,609,611,000	5,594,430,000	24,947,469,000	23,817,296,000	17,178,873,000
Department of Justice	1999	3,036,810,000	1,891,216,000	5,986,413,000	26,082,078,000	24,910,389,000	18,954,028,000
Department of Justice	2000	0					
Department of Treasury	1998	47,850,000,000	5,486,278,000,000	5,617,263,000,000	5,696,351,000,000	157,668,000,000	13,080,000,000
Department of Treasury	1999	49,616,000,000	5,637,099,000,000	5,686,324,000,000	5,793,702,000,000	177,136,000,000	10,637,000,000
Department of Treasury	2000	58,370,000,000	5,685,183,000,000	6,041,170,000,000	6,127,504,000,000	155,625,000,000	12,426,000,000
Federal Emergency Management Agency	1998	3,527,586,000	13,422,000	2,325,673,000	9,786,646,000	9,786,646,000	2,603,392,000
Federal Emergency Management Agency	1999	2,227,830,000	45,904,000	2,610,287,000	8,530,153,000	8,530,153,000	4,423,926,000
Federal Emergency Management Agency	2000	3,847,853,000	21,520,000	2,374,521,000	9,235,892,000	9,235,892,000	2,957,925,000
Nuclear Regulatory Commission	1998	35,180,599	32,454,450	109,601,918	235,366,939	235,330,333	48,838,891
Nuclear Regulatory Commission	1999	33,893,841	30,454,297	113,267,799	229,821,091	229,777,329	58,313,054
Nuclear Regulatory Commission	2000	30,464,106	35,377,559	129,775,154	225,926,430	225,712,254	47,691,376
Department of Commerce	1998	708,047,000	930,063,000	2,258,822,000	8,949,262,000	8,821,444,000	4,108,533,000
Department of Commerce	1999	821,124,000	815,552,000	2,498,611,000	9,398,585,000	9,272,119,000	5,080,130,000
Department of Commerce	2000	1,623,143,000	869,151,000	2,864,325,000	10,591,628,000	10,462,835,000	8,384,770,000
Department of Health and Human Services	1998	176,252,000,000	5,663,000,000	47,102,000,000	235,289,000,000	233,999,000,000	346,633,000,000
Department of Health and Human Services	1999	200,274,000,000	5,394,000,000	47,407,000,000	271,634,000,000	271,528,000,000	358,435,000,000
Department of Health and Human Services	2000	43,872,000,000	6,393,000,000	46,957,000,000	312,637,000,000	312,533,000,000	385,481,000,000
Department of Labor	1998	72,355,813,000	6,902,419,000	7,976,839,000	86,584,317,000	86,412,419,000	31,238,910,000
Department of Labor	1999	79,771,990,000	6,512,612,000	8,240,254,000	95,827,570,000	95,609,485,000	32,554,880,000
Department of Labor	2000	11,249,388,000	7,130,950,000	9,200,592,000	103,157,845,000	102,905,528,000	32,855,677,000
Department of Veterans Affairs	1998	23,485,000,000	581,384,000,000	609,482,000,000	46,318,000,000	45,111,000,000	152,383,000,000
Department of Veterans Affairs	1999	23,261,000,000	486,443,000,000	517,011,000,000	48,851,000,000	47,029,000,000	-51,118,000,000
Department of Veterans Affairs	2000	23,553,000,000	549,736,000,000	576,150,000,000	43,956,000,000	43,909,000,000	107,310,000,000
General Services Administration	1998	3,557,000,000	921,000,000	5,722,000,000	20,080,000,000	19,944,000,000	-38,000,000
General Services Administration	1999	3,883,000,000	871,000,000	5,692,000,000	21,353,000,000	21,250,000,000	-536,000,000
General Services Administration	2000	4,527,000,000	974,000,000	6,051,000,000	22,198,000,000	22,102,000,000	-208,000,000
Office of Personnel Management	1998	53,693,085,000	1,157,494,248,000	1,164,337,506,000	488,079,185,000	488,079,185,000	30,197,080,000
Office of Personnel Management	1999	55,546,302,000	1,187,185,073,000	1,194,257,858,000	519,645,469,000	519,645,469,000	24,475,719,000
Office of Personnel Management	2000	51,470,000,000	1,247,979,000,000	1,255,549,000,000	552,121,000,000	552,121,000,000	55,563,000,000
Department of Agriculture	1998	42,394,563,000	1,679,277,000	107,598,214,000	121,724,521,000	120,969,850,000	58,620,542,000
Department of Agriculture	1999	44,387,000,000	3,439,000,000	117,230,000,000	118,434,000,000	117,915,000,000	64,036,000,000
Department of Agriculture	2000	90,120,000,000	3,926,000,000	115,899,000,000	124,412,000,000	124,179,000,000	75,034,000,000
Department of Housing and Urban Development	1998	52,223,000,000	10,218,000,000	35,157,000,000	111,463,000,000	110,740,000,000	31,473,000,000
Department of Housing and Urban Development	1999	49,261,000,000	9,207,000,000	32,937,000,000	107,870,000,000	107,140,000,000	27,075,000,000
Department of Housing and Urban Development	2000	47,580,000,000	7,893,000,000	32,113,000,000	106,812,000,000	105,904,000,000	32,644,000,000
Department of State	1998	1,649,225,000	3,115,481,000	13,202,004,000	17,553,875,000	17,494,740,000	3,913,044,000
Department of State	1999	3,230,923,000	3,006,436,000	13,764,425,000	20,680,765,000	20,658,206,000	5,021,284,000
Department of State	2000	0					
Agency for International Development	1998	3,105,000,000	417,121,000	9,436,250,000	18,122,000,000	18,122,000,000	6,587,000,000
Agency for International Development	1999	3,133,479,000	489,481,000	9,406,164,000	19,170,642,000	19,048,572,000	6,249,323,000
Agency for International Development	2000	3,150,116,000	504,560,000	9,305,391,000	19,281,252,000	19,234,207,000	6,730,468,000
National Aeronautical Space Administration	1998	1,092,900,000	1,713,179,000	5,010,848,000	30,083,913,000	30,078,414,000	14,132,260,000
National Aeronautical Space Administration	1999	910,371,000	1,357,084,000	4,631,562,000	32,110,085,000	32,106,641,000	11,438,816,000
National Aeronautical Space Administration	2000	832,078,000	1,293,392,000	4,438,156,000	34,504,593,000	34,497,893,000	11,080,319,000
Small Business Administration	1998	6,079,980,000	43,899,000	15,886,667,000	15,911,079,000	15,911,079,000	655,996,000
Small Business Administration	1999	8,064,877,000	44,083,000	15,780,392,000	16,168,711,000	16,168,711,000	514,946,000
Small Business Administration	2000	7,673,721,000	1,146,494,000	16,180,989,000	16,120,216,000	16,120,216,000	635,425,000
Department of Education	1998	14,729,078,000	31,503,000	50,517,568,000	88,855,695,000	87,008,815,000	34,155,934,000
Department of Education	1999	20,616,190,000	108,286,000	74,720,060,000	105,701,041,000	103,854,161,000	35,648,414,000
Department of Education	2000	17,973,599,000	294,995,000	92,399,780,000	118,998,536,000	116,766,722,000	32,718,824,000
Department of the Interior	1998	3,382,451,000	1,600,415,000	10,591,533,000	50,449,569,000	45,312,911,000	8,304,124,000
Department of the Interior	1999	3,468,489,000	1,583,408,000	10,584,531,000	50,748,620,000	45,604,750,000	-9,242,982,000
Department of the Interior	2000	3,427,746,000	2,048,103,000	8,996,963,000	49,975,971,000	47,088,346,000	10,080,263,000
Department of Transportation	1998	58,411,923,000	25,951,201,000	37,201,596,000	65,680,346,000	64,724,576,000	41,046,042,000
Department of Transportation	1999	69,033,084,000	24,159,762,000	29,540,810,000	76,229,174,000	75,051,048,000	42,457,423,000
Department of Transportation	2000	73,630,101,000	24,872,982,000	31,695,477,000	84,554,825,000	83,395,217,000	47,025,870,000
Environmental Protection Agency	1998	2,592,262,000	175,586,000	1,574,168,000	17,823,530,000	17,823,530,000	6,149,632,000
Environmental Protection Agency	1999	2,636,942,000	124,608,000	1,927,447,000	17,982,249,000	17,979,993,000	8,835,689,000
Environmental Protection Agency	2000	2,309,031,000	156,353,000	1,948,219,000	18,032,519,000	18,025,451,000	7,408,449,000
National Science Foundation	1998	169,154,000	10,374,000	224,949,000	4,105,049,000	4,105,049,000	3,264,910,000
National Science Foundation	1999	205,762,000	11,272,000	332,436,000	4,572,996,000	4,572,996,000	3,366,421,000
National Science Foundation	2000	273,765,000	11,999,000	379,969,000	5,103,756,000	5,103,756,000	3,496,510,000
Social Security Administration	1998	691,334,000,000	3,214,000,000	43,651,000,000	748,350,000,000	746,702,000,000	408,115,000,000
Social Security Administration	1999	124,876,000,000	3,553,000,000	44,130,000,000	874,857,000,000	873,019,000,000	418,597,000,000
Social Security Administration	2000	150,019,000,000	3,614,000,000	46,104,000,000	1,029,236,000,000	1,027,401,000,000	442,827,000,000

Agency	Year	Total Financing	General FPE	Net Results of Operations	Total Costs Not Assigned to Programs	Total Program Cost	Net Position
Department of Defense	1998	280,522,560,000	126,219,193,000	256,230,000	0	317,371,808,000	-357,322,642,000
Department of Defense	1999	303,004,200,000	119,337,800,000	-74,860,400,000	0	410,343,200,000	-399,968,600,000
Department of Defense	2000	321,405,600,000	112,520,400,000	-26,067,900,000	0	374,884,900,000	-386,017,600,000
Department of Energy	1998	13,376,000,000	19,840,000,000	-7,636,000,000	13,049,000,000	16,091,000,000	-132,328,000,000
Department of Energy	1999	17,352,000,000	18,501,000,000	-14,739,000,000	21,768,000,000	16,158,000,000	-178,236,000,000
Department of Energy	2000	16,178,000,000	18,556,000,000	-5,004,000,000	11,136,000,000	18,511,000,000	-182,821,000,000
Department of Justice	1998	17,781,049,000	4,929,081,000	602,176,000	32,304,000	20,615,961,000	18,353,039,000
Department of Justice	1999	19,963,751,000	5,282,695,000	1,009,723,000	5,971,000	22,980,664,000	20,095,665,000
Department of Justice	2000						
Department of Treasury	1998	387,743,000,000	1,461,000,000	3,319,000,000	1,093,000,000	21,355,000,000	79,088,000,000
Department of Treasury	1999	371,577,000,000	2,658,000,000	5,300,000,000	612,000,000	20,074,000,000	107,304,000,000
Department of Treasury	2000	358,673,000,000	2,790,000,000	-6,299,000,000	944,000,000	20,283,000,000	106,314,000,000
Federal Emergency Management Agency	1998	2,557,703,000	24,576,000	45,689,000	0	3,939,188,000	7,460,973,000
Federal Emergency Management Agency	1999	4,449,119,000	29,547,000	25,193,000	0	5,903,918,000	5,919,866,000
Federal Emergency Management Agency	2000	3,606,576,000	27,572,000	648,651,000	0	4,523,622,000	6,861,371,000
Nuclear Regulatory Commission	1998	55,477,442	39,432,602	6,638,551	0	511,176,498	125,765,021
Nuclear Regulatory Commission	1999	61,874,176	40,471,198	3,561,122	0	503,339,736	116,553,292
Nuclear Regulatory Commission	2000	42,153,145	41,853,364	-5,538,231	0	510,729,364	96,151,276
Department of Commerce	1998	4,400,075,000	3,868,550,000	291,542,000	3,289,000	5,562,799,000	6,690,440,000
Department of Commerce	1999	5,334,885,000	4,082,449,000	254,755,000	4,313,000	6,654,546,000	7,169,975,000
Department of Commerce	2000	8,365,343,000	4,103,710,000	-17,963,000	4,345,000	10,001,079,000	7,727,303,000
Department of Health and Human Services	1998	353,154,000,000	1,686,000,000	6,521,000,000	0	369,116,000,000	188,187,000,000
Department of Health and Human Services	1999	388,717,000,000	1,822,000,000	30,282,000,000	0	452,012,000,000	224,227,000,000
Department of Health and Human Services	2000	419,558,000,000	2,046,000,000	34,077,000,000	0	409,534,000,000	265,680,000,000
Department of Labor	1998	39,670,799,000	646,834,000	8,431,889,000	65,367,000	33,563,931,000	78,607,478,000
Department of Labor	1999	39,606,424,000	690,281,000	7,051,544,000	58,178,000	34,918,395,000	87,587,316,000
Department of Labor	2000	41,344,863,000	738,804,000	8,489,186,000	66,406,000	35,315,404,000	93,957,253,000
Department of Veterans Affairs	1998	42,794,000,000	11,941,000,000	-109,589,000,000	139,000,000	155,838,000,000	-563,164,000,000
Department of Veterans Affairs	1999	44,532,000,000	12,036,000,000	95,650,000,000	58,000,000	-47,442,000,000	-468,160,000,000
Department of Veterans Affairs	2000	45,265,000,000	11,564,000,000	-62,045,000,000	-10,000,000	174,580,000,000	-532,194,000,000
General Services Administration	1998	544,000,000	14,520,000,000	582,000,000	0	12,079,000,000	14,358,000,000
General Services Administration	1999	717,000,000	15,180,000,000	1,253,000,000	0	13,067,000,000	15,661,000,000
General Services Administration	2000	300,000,000	15,668,000,000	508,000,000	0	14,014,000,000	16,147,000,000
Office of Personnel Management	1998	25,605,569,000	12,888,000	-4,591,511,000	0	96,871,267,000	-676,258,321,000
Office of Personnel Management	1999	26,149,095,000	12,166,000	1,673,376,000	0	94,149,577,000	-674,612,389,000
Office of Personnel Management	2000	26,738,000,000	10,000,000	-28,825,000,000	0	128,255,000,000	-703,428,000,000
Department of Agriculture	1998	47,186,891,000	3,632,659,000	-9,433,751,000	9,940,000	65,670,672,000	14,119,000,000
Department of Agriculture	1999	53,348,000,000	3,780,000,000	-10,688,000,000	33,000,000	72,185,000,000	-3,737,000,000
Department of Agriculture	2000	85,737,000,000	5,383,000,000	10,703,000,000	117,000,000	85,056,000,000	8,513,000,000
Department of Housing and Urban Development	1998	31,546,000,000	24,000,000	-73,000,000	298,000,000	36,049,000,000	76,306,000,000
Department of Housing and Urban Development	1999	33,036,000,000	29,000,000	-5,961,000,000	390,000,000	30,645,000,000	74,934,000,000
Department of Housing and Urban Development	2000	34,257,000,000	27,000,000	-1,613,000,000	344,000,000	34,347,000,000	74,499,000,000
Department of State	1998	4,388,562,000	4,434,797,000	475,518,000	1,505,699,000	4,793,952,000	4,351,872,000
Department of State	1999	5,546,064,000	4,624,322,000	524,780,000	2,098,951,000	5,313,003,000	6,916,340,000
Department of State	2000						
Agency for International Development	1998	6,642,000,000	28,000,000	55,000,000	-3,000,000	6,639,000,000	8,685,644,000
Agency for International Development	1999	6,237,892,000	28,554,000	-11,431,000	-3,205,000	6,311,537,000	9,764,478,000
Agency for International Development	2000	6,738,532,000	35,969,000	8,064,000	-6,294,000	6,802,676,000	9,975,861,000
National Aeronautical Space Administration	1998	14,167,635,000	21,367,659,000	35,375,000	-35,043,000	14,882,710,000	25,073,065,000
National Aeronautical Space Administration	1999	13,796,163,000	23,478,807,000	2,357,347,000	-2,342,636,000	14,599,262,000	27,478,523,000
National Aeronautical Space Administration	2000	13,559,174,000	25,470,254,000	2,478,855,000	-2,420,585,000	14,239,403,000	30,066,437,000
Small Business Administration	1998	291,245,000	686,000	-364,751,000	7,113,000	660,587,000	24,413,000
Small Business Administration	1999	530,111,000	740,000	15,165,000	12,351,000	515,308,000	388,319,000
Small Business Administration	2000	131,288,000	0	-504,137,000	38,947,000	1,473,843,000	-60,773,000
Department of Education	1998	32,420,858,000	0	1,735,076,000	1,362,070,000	35,747,118,000	36,338,127,000
Department of Education	1999	34,407,330,000	0	-1,241,084,000	198,417,000	39,529,314,000	30,980,981,000
Department of Education	2000	33,249,524,000	1,307,000	530,700,000	0	37,805,272,000	26,598,756,000
Department of the Interior	1998	10,108,306,000	17,299,757,000	655,638,000	593,129,000	9,604,334,000	40,038,017,000
Department of the Interior	1999	11,058,387,000	16,764,648,000	957,858,000	754,308,000	10,832,948,000	40,164,088,000
Department of the Interior	2000	10,174,232,000	16,705,050,000	1,493,641,000	812,453,000	11,467,342,000	40,979,008,000
Department of Transportation	1998	39,682,483,000	13,821,827,000	-1,363,559,000	191,587,000	41,781,649,000	28,478,750,000
Department of Transportation	1999	58,319,664,000	15,176,965,000	15,862,241,000	237,060,000	43,223,855,000	46,592,233,000
Department of Transportation	2000	52,582,998,000	16,175,366,000	5,557,128,000	245,366,000	47,716,662,000	52,859,348,000
Environmental Protection Agency	1998	5,913,674,000	273,071,000	-235,958,000	0	6,829,890,000	16,249,362,000
Environmental Protection Agency	1999	6,548,734,000	399,375,000	-286,955,000	0	7,736,892,000	16,054,802,000
Environmental Protection Agency	2000	7,298,095,000	486,609,000	2,643,455,000	145,495,000	7,724,938,000	16,084,300,000
National Science Foundation	1998	3,325,742,000	92,546,000	60,832,000	0	3,357,268,000	3,880,100,000
National Science Foundation	1999	3,353,153,000	101,471,000	-13,268,000	0	3,439,614,000	4,240,560,000
National Science Foundation	2000	3,510,200,000	134,501,000	13,690,000	0	3,580,726,000	4,723,787,000
Social Security Administration	1998	507,741,000,000	307,000,000	99,626,000,000	1,103,000,000	410,196,000,000	704,699,000,000
Social Security Administration	1999	544,561,000,000	340,000,000	125,964,000,000	1,067,000,000	420,997,000,000	830,727,000,000
Social Security Administration	2000	595,217,000,000	341,000,000	152,390,000,000	1,122,000,000	445,610,000,000	983,132,000,000

Agency	Year	Inventory and Related		Total Cost of	PP&E (Beginning)	Accounts Receivable,	Accounts Receivable,
		Property	Depreciation Expense			Net (Assets for Use	Net (Assets Not for
				Operations		by Entity)	Use by Entity)
Agency	1998	122,129,723,000	4,444,970,000	317,371,808,000	777,032,816,000	6,997,019,000	147,562,000
Department of Defense	1999	128,210,700,000	5,367,800,000	410,343,200,000	126,219,193,000	3,387,800,000	413,600,000
Department of Defense	2000	139,067,500,000	4,096,700,000	374,884,900,000	119,337,800,000	2,963,100,000	2,572,500,000
Department of Energy	1998	37,318,000,000	1,896,000,000	29,140,000,000	20,756,000,000	5,022,000,000	0
Department of Energy	1999	37,562,000,000	1,473,000,000	37,926,000,000	19,840,000,000	5,049,000,000	0
Department of Energy	2000	37,801,000,000	1,088,000,000	29,647,000,000	18,501,000,000	9,702,000,000	0
Department of Justice	1998	106,577,000	264,338,000	20,648,265,000		390,861,000	9,239,000
Department of Justice	1999	124,333,000	265,129,000	22,986,635,000	4,929,081,000	530,270,000	6,492,000
Department of Justice	2000			0			
Department of Treasury	1998	365,000,000	251,000,000	22,448,000,000	1,393,833,000	0	152,000,000
Department of Treasury	1999	424,000,000	504,000,000	20,686,000,000	1,461,000,000	0	737,000,000
Department of Treasury	2000	617,000,000	177,000,000	21,227,000,000	2,658,000,000	0	941,000,000
Federal Emergency Management Agency	1998	4,293,000	2,304,000	3,939,188,000	21,121,000	164,925,000	0
Federal Emergency Management Agency	1999	3,920,000	4,540,000	5,903,918,000	24,576,000	71,664,000	0
Federal Emergency Management Agency	2000	4,173,000	9,377,000	4,523,622,000	29,547,000	109,805,000	0
Nuclear Regulatory Commission	1998	0	5,571,440	511,176,498	35,798,569	28,318,274	36,606
Nuclear Regulatory Commission	1999	0	6,122,908	503,339,736	39,432,602	36,191,240	43,762
Nuclear Regulatory Commission	2000	0	6,536,224	510,729,364	40,471,198	43,822,811	214,176
Department of Commerce	1998	99,978,000	361,164,000	5,566,088,000	1,707,148,000	140,062,000	428,000
Department of Commerce	1999	104,926,000	528,463,000	6,658,859,000	3,868,550,000	137,326,000	1,491,000
Department of Commerce	2000	102,727,000	526,798,000	10,005,424,000	4,082,449,000	143,619,000	1,331,000
Department of Health and Human Services	1998	87,000,000	7,680,000,000	369,116,000,000	1,340,000,000	3,981,000,000	1,290,000,000
Department of Health and Human Services	1999	75,000,000	-602,000,000	452,012,000,000	1,686,000,000	10,961,000,000	2,000,000
Department of Health and Human Services	2000	63,000,000	1,206,000,000	409,534,000,000	1,822,000,000	6,067,000,000	87,000,000
Department of Labor	1998	0	58,873,000	33,629,298,000	580,581,000	5,106,887,000	44,548,000
Department of Labor	1999	0	37,608,000	34,976,573,000	646,834,000	5,333,201,000	53,003,000
Department of Labor	2000	0	41,108,000	35,381,810,000	690,281,000	5,637,537,000	107,893,000
Department of Veterans Affairs	1998	90,000,000	858,000,000	155,977,000,000	11,655,000,000	1,150,000,000	0
Department of Veterans Affairs	1999	76,000,000	906,000,000	-47,384,000,000	11,941,000,000	1,310,000,000	0
Department of Veterans Affairs	2000	74,000,000	912,000,000	174,570,000,000	12,036,000,000	1,230,000,000	0
General Services Administration	1998	197,000,000	965,000,000	12,079,000,000	13,214,000,000	1,790,000,000	2,000,000
General Services Administration	1999	184,000,000	1,030,000,000	13,067,000,000	14,520,000,000	1,723,000,000	1,000,000
General Services Administration	2000	189,000,000	1,102,000,000	14,014,000,000	15,180,000,000	2,087,000,000	3,000,000
Office of Personnel Management	1998	0	0	96,871,267,000	20,396,000	184,022,000	0
Office of Personnel Management	1999	0	0	94,149,577,000	12,888,000	195,328,000	0
Office of Personnel Management	2000	0	0	128,255,000,000	12,166,000	286,000,000	0
Department of Agriculture	1998	442,876,000	30,384,000	65,680,612,000	9,582,849,000	408,471,000	92,083,000
Department of Agriculture	1999	453,000,000	644,000,000	72,218,000,000	3,632,659,000	1,561,195,000	92,083,000
Department of Agriculture	2000	581,000,000	2,187,000,000	85,173,000,000	3,780,000,000	2,072,000,000	27,000,000
Department of Housing and Urban Development	1998	0	2,000,000	36,347,000,000	15,100,000	348,000,000	407,000,000
Department of Housing and Urban Development	1999	0	9,000,000	31,035,000,000	24,000,000	670,000,000	360,000,000
Department of Housing and Urban Development	2000	0	6,000,000	34,691,000,000	29,000,000	689,000,000	307,000,000
Department of State	1998	907,000	205,463,000	6,299,651,000	4,399,532,000	280,899,000	0
Department of State	1999	568,000	210,810,000	7,411,954,000	4,434,797,000	285,457,000	0
Department of State	2000			0			
Agency for International Development	1998	27,000,000	6,000,000	6,636,000,000	55,000,000	505,000,000	0
Agency for International Development	1999	18,270,000	5,748,000	6,308,332,000	28,000,000	387,339,000	120,310,000
Agency for International Development	2000	21,122,000	5,216,000	6,796,382,000	28,554,000	477,815,000	43,994,000
National Aeronautical Space Administration	1998	2,280,577,000	2,013,438,000	14,847,667,000	27,593,191,000	152,988,000	5,499,000
National Aeronautical Space Administration	1999	2,256,179,000	2,076,695,000	12,256,626,000	21,367,659,000	127,663,000	3,444,000
National Aeronautical Space Administration	2000	2,679,418,000	2,257,134,000	11,818,818,000	23,478,807,000	119,316,000	6,700,000
Small Business Administration	1998	0	0	667,700,000	2,005,000	400,110,000	0
Small Business Administration	1999	0	0	527,659,000	686,000	371,754,000	0
Small Business Administration	2000	0	0	1,512,590,000	740,000	455,657,000	0
Department of Education	1998	0	-10,000	37,109,188,000	0	14,080,000	1,846,880,000
Department of Education	1999	0	0	39,727,731,000	0	14,140,000	1,846,880,000
Department of Education	2000	0	0	37,805,272,000	0	82,703,000	2,231,814,000
Department of the Interior	1998	389,315,000	335,074,000	10,197,463,000	17,158,242,000	829,376,000	569,721,000
Department of the Interior	1999	386,612,000	426,283,000	11,587,256,000	17,299,757,000	662,599,000	591,620,000
Department of the Interior	2000	378,152,000	435,517,000	12,279,795,000	16,764,648,000	959,261,000	663,183,000
Department of Transportation	1998	2,190,619,000	481,537,000	41,973,236,000	26,504,000,000	490,404,000	10,055,000
Department of Transportation	1999	2,174,179,000	857,260,000	43,460,915,000	13,821,827,000	524,270,000	14,488,000
Department of Transportation	2000	2,307,743,000	1,094,535,000	47,962,028,000	15,176,965,000	725,831,000	14,747,000
Environmental Protection Agency	1998	74,000	23,573,000	6,829,890,000	201,158,000	816,511,000	0
Environmental Protection Agency	1999	237,000	16,076,000	7,736,892,000	273,071,000	833,483,000	0
Environmental Protection Agency	2000	5,433,000	24,305,000	7,870,433,000	399,375,000	775,785,000	0
National Science Foundation	1998	0	6,363,000	3,357,268,000	77,835,000	893,000	0
National Science Foundation	1999	0	9,349,000	3,439,614,000	92,546,000	1,237,000	0
National Science Foundation	2000	0	10,300,000	3,580,726,000	101,471,000	4,855,000	0
Social Security Administration	1998	0	132,000,000	411,299,000,000	301,000,000	2,431,000,000	1,648,000,000
Social Security Administration	1999	0	170,000,000	422,064,000,000	307,000,000	2,719,000,000	1,838,000,000
Social Security Administration	2000	0	99,000,000	446,732,000,000	340,000,000	3,362,000,000	1,835,000,000

APPENDIX B. RATIOS CALCULATED FROM FEDERAL FINANCIAL STATEMENTS

Appendix B contains the ratios calculated from the individual federal financial statements. Data is arranged by department or agency and for each of the three years collected.

Agency	Year	Ratio Type	Budgetary Integrity	Budgetary Integrity	Budgetary Integrity	Budgetary Integrity	Budgetary Integrity
		Ratio	Budget Authority to Budgetary Resources	Utilization Ratio	Earned Revenues to Total Budgetary Resources	Outlays to Obligations	Compliance/ Anti-deficiency Ratio
				Total Budgetary Resources - Unobligated Balance (End)			
		Numerator Denominator	Budget Authority Total Budgetary Resources	Total Budgetary Resources	Earned Revenues Budget Authority	Total Outlays Obligations Incurred, Net	Obligations Incurred, Net Total Budgetary Resources
Department of Defense	1998		0.53131438	0.68898092	0.11561736	1.01288297	0.50733989
Department of Defense	1999		0.53147150	0.67937085	0.08724007	0.98423227	0.50277253
Department of Defense	2000		0.53935478	0.68127470	0.07756484	0.99801157	0.51412115
Department of Energy	1998		0.71025944	0.87117684	0.32341304	0.98999942	0.70048467
Department of Energy	1999		0.72407335	0.85489661	0.30795344	0.97869917	0.68505657
Department of Energy	2000		0.73739053	0.79580978	0.32396272	0.97660002	0.66164136
Department of Justice	1998		0.73029026	0.84211425	0.12230938	0.89206799	0.71365033
Department of Justice	1999		0.70812398	0.89094866	0.12664507	0.92104452	0.72924010
Department of Justice	2000						
Department of Treasury	1998		0.88289581	0.89252891	0.02481067	0.99939857	0.87095632
Department of Treasury	1999		0.86550550	0.85354285	0.03546190	1.00186748	0.84983552
Department of Treasury	2000		0.88810436	0.89731347	0.02775045	1.00717802	0.87790876
Federal Emergency Management Agency	1998		0.31278229	0.61513324	0.46594084	0.56796648	0.42933762
Federal Emergency Management Agency	1999		0.35642488	0.73309566	0.44840348	0.99205347	0.49420259
Federal Emergency Management Agency	2000		0.68103545	0.41787356	0.34792532	1.24585858	0.37265156
Nuclear Regulatory Commission	1998		0.91590683	0.63302749	0.96095112	1.04444771	0.90484607
Nuclear Regulatory Commission	1999		0.90883240	0.93484490	0.94130313	1.01725666	0.91130597
Nuclear Regulatory Commission	2000		0.91483903	0.94095081	0.98106417	1.02659785	0.91373367
Department of Commerce	1998		0.66650615	0.89344423	0.32910492	0.97243249	0.65348152
Department of Commerce	1999		0.68723375	0.90107447	0.28505450	0.96053548	0.64789940
Department of Commerce	2000		0.74104317	0.86601303	0.18053134	0.95499092	0.68759320
Department of Health and Human Services	1998		0.71831422	0.72012919	0.04954384	0.98306454	0.70368330
Department of Health and Human Services	1999		1.00216275	0.58590531	0.04896129	0.98006517	0.95308316
Department of Health and Human Services	2000		1.02355332	0.91385316	0.09225785	0.98115902	0.96256995
Department of Labor	1998		0.39407095	0.32699640	0.05642063	0.94909460	0.30965041
Department of Labor	1999		0.36280326	0.31604805	0.05722981	0.96129668	0.29778276
Department of Labor	2000		1.08531358	0.69560641	0.05298071	1.01802071	0.87429371
Department of Veterans Affairs	1998		0.63419469	0.68982061	0.08120331	0.99010110	0.59935609
Department of Veterans Affairs	1999		0.62895632	0.69270087	0.07866160	1.00534000	0.58632671
Department of Veterans Affairs	2000		0.61941733	0.70022528	0.06753385	1.03908935	0.58260013
General Services Administration	1998		0.92437038	0.793211348	28.91885442	-133.88888889	-0.00052347
General Services Administration	1999		0.02389735	0.79931425	29.49130435	-0.05754032	0.05153514
General Services Administration	2000		0.01041099	0.77556889	69.87142857	-0.21350385	-0.02176772
Office of Personnel Management	1998		0.87758008	0.38415769	0.87140919	0.99544916	0.53463060
Office of Personnel Management	1999		0.87280571	0.38431772	0.88549305	0.99626402	0.52826154
Office of Personnel Management	2000		0.81605179	0.44832687	0.95476516	0.99396427	0.52741752
Department of Agriculture	1998		0.70919614	0.59920813	0.12077248	0.95678582	0.54848756
Department of Agriculture	1999		0.74547650	0.63040093	0.09139040	0.93232169	0.58933344
Department of Agriculture	2000		1.09107832	0.30961574	0.07118834	1.00088884	0.60331250
Department of Housing and Urban Development	1998		0.37172530	0.40464899	0.14947711	1.35400404	0.28770506
Department of Housing and Urban Development	1999		0.35262241	0.49257314	0.11561369	1.21291915	0.30043283
Department of Housing and Urban Development	2000		0.32549885	0.44365843	0.17728611	1.20023957	0.29284520
Department of State	1998		0.75921471	0.80214653	0.37712043	0.94574126	0.64176828
Department of State	1999		0.81292397	0.71487674	0.25952294	0.90403056	0.61028837
Department of State	2000						
Agency for International Development	1998		0.74029296	0.63903743	0.00816583	0.98510972	0.59303508
Agency for International Development	1999		0.78690404	0.68143434	0.00856648	0.85426754	0.64188795
Agency for International Development	2000		0.68063881	0.68579703	0.01058163	0.98435643	0.58166111
National Aeronautics and Space Administration	1998		0.89098863	0.92855995	0.03241240	1.04271096	0.88933871
National Aeronautics and Space Administration	1999		0.88536989	0.94100185	0.05986152	0.98893726	0.85540618
National Aeronautics and Space Administration	2000		0.89621276	0.94520240	0.05406801	0.98211374	0.90133755
Small Business Administration	1998		0.14783009	0.46289711	0.00661486	0.45095843	0.20763459
Small Business Administration	1999		0.18666687	0.28404483	0.43333845	1.23753098	0.06547898
Small Business Administration	2000		0.15214257	0.35066438	0.48770812	0.61538583	0.06680855
Department of Education	1998		0.59963828	0.79142826	0.05976859	0.89206519	0.67142200
Department of Education	1999		0.70268822	0.73921962	0.07343509	0.94743733	0.60367189
Department of Education	2000		0.70016651	0.77883483	0.08939145	0.92075543	0.64960017
Department of the Interior	1998		0.61508630	0.78977169	0.19131632	0.97217592	0.56915182
Department of the Interior	1999		0.56558930	0.80678730	0.22850202	0.97810978	0.56642806
Department of the Interior	2000		0.66632804	0.79904378	0.19352408	0.96894440	0.60650129
Department of Transportation	1998		0.81455910	0.29653505	0.01811805	0.9696478	0.48489788
Department of Transportation	1999		0.85314549	-0.03420321	0.01762136	0.91075393	0.69619457
Department of Transportation	2000		0.67795554	0.10735646	0.01674058	0.90581902	0.62194049
Environmental Protection Agency	1998		0.71992306	0.75329417	0.08992658	0.89459094	0.73528380
Environmental Protection Agency	1999		0.74471059	0.75011346	0.11487728	0.95257539	0.72409635
Environmental Protection Agency	2000		0.74575564	0.79189202	0.04620881	1.00170795	0.73209559
National Science Foundation	1998		0.93790414	0.95437551	0.02655023	0.94810681	0.91234694
National Science Foundation	1999		0.92983257	0.94889047	0.01957542	0.89658723	0.91631332
National Science Foundation	2000		0.92530690	0.93669043	0.02104749	0.89075855	0.90538242
Social Security Administration	1998		0.46108327	0.37599828	0.00623292	0.99672869	0.37358923
Social Security Administration	1999		1.28311602	0.70773037	0.00632401	1.00013457	0.99138704
Social Security Administration	2000		1.32245643	0.66818765	0.00653109	0.99573415	0.99083429

	Ratio Type	Operating Performance				
		Budgetary Integrity	Operating Performance	Operating Performance	Operating Performance	Operating Performance
		Percentage of Uncovered Liabilities	Liabilities to Assets	Entity Liabilities to Entity Assets	Liabilities Covered by Budgetary Resources to Net Position	Earned Revenues to Entity Assets
		Ratio				
	Numerator	Total Liabilities Not Covered by Budgetary Resources	Total Liabilities	Total Liabilities - Non Entity Assets	Total Liabilities	Earned Revenues (Assigned and Not Assigned to Programs)
		Denominator	Total Liabilities	Entity Assets	Net Position	Entity Assets
Agency	Year					
Department of Defense	1998	0.81322877	1.60440795	1.60592104	-2.65451166	0.06292070
Department of Defense	1999	0.81143651	1.66774850	1.67072971	-2.49756981	0.05446518
Department of Defense	2000	0.80168504	1.62590533	1.63037031	-2.59768570	0.04476307
Department of Energy	1998	0.84224218	2.35125089	2.35125089	-1.74005501	0.05759216
Department of Energy	1999	0.86147352	2.82303184	2.82303184	-1.54853677	0.05845411
Department of Energy	2000	0.97157367	2.81136431	2.81136431	-1.55207006	0.06405430
Department of Justice	1998	0.24408645	0.26433263	0.22942390	0.35930998	0.09719584
Department of Justice	1999	0.31591806	0.22952209	0.19328177	0.29789574	0.10025444
Department of Justice	2000					
Department of Treasury	1998	0.97668170	0.98611602	0.49838902	71.02547795	0.06185783
Department of Treasury	1999	0.99134326	0.98146643	0.39381041	52.99265638	0.06416539
Department of Treasury	2000	0.94107317	0.98591041	0.44524337	56.82384258	0.06977671
Federal Emergency Management Agency	1998	0.00577123	0.23763739	0.23763739	0.31171176	0.13649171
Federal Emergency Management Agency	1999	0.01758581	0.30600706	0.30600706	0.44093684	0.17350123
Federal Emergency Management Agency	2000	0.00906288	0.25709709	0.25709709	0.34807092	0.16952310
Nuclear Regulatory Commission	1998	0.29611206	0.46566403	0.46558092	0.87148173	1.96463244
Nuclear Regulatory Commission	1999	0.26886986	0.49285206	0.49275548	0.97181124	1.93677212
Nuclear Regulatory Commission	2000	0.27260657	0.57441333	0.57400950	1.34969788	2.05145259
Department of Commerce	1998	0.41174692	0.25240316	0.24157088	0.33761935	0.16522862
Department of Commerce	1999	0.32640215	0.26584970	0.25583634	0.34848253	0.17026626
Department of Commerce	2000	0.30344008	0.27043293	0.26145227	0.37067590	0.15489626
Department of Health and Human Services	1998	0.12022844	0.20018785	0.19577861	0.25029359	0.09577819
Department of Health and Human Services	1999	0.11378067	0.17452528	0.17420303	0.21142414	0.08739798
Department of Health and Human Services	2000	0.13614584	0.15019555	0.14991377	0.17674270	0.15389095
Department of Labor	1998	0.86530755	0.09212799	0.09032198	0.10147685	0.02766255
Department of Labor	1999	0.79034117	0.08599043	0.08390558	0.09408045	0.02532900
Department of Labor	2000	0.77505339	0.08918946	0.08695621	0.09792317	0.02454808
Department of Veterans Affairs	1998	0.95389856	13.15864243	13.48396178	-1.08224602	0.08119971
Department of Veterans Affairs	1999	0.94087553	10.58342716	10.95470880	-1.10434680	0.07963172
Department of Veterans Affairs	2000	0.95415430	13.10742561	13.12038534	-1.08259394	0.09701883
General Services Administration	1998	0.16095771	0.28496016	0.28008424	0.39852347	0.60755114
General Services Administration	1999	0.15302178	0.26656676	0.26301176	0.36345061	0.63840000
General Services Administration	2000	0.16096513	0.27259213	0.26943263	0.37474453	0.66387657
Office of Personnel Management	1998	0.99412262	2.38555042	2.38555042	-1.72173483	0.13660527
Office of Personnel Management	1999	0.99407767	2.29821663	2.29821663	-1.77028747	0.13418195
Office of Personnel Management	2000	0.99397076	2.27404681	2.27404681	-1.78490052	0.13165955
Department of Agriculture	1998	0.01560692	0.88394855	0.88322456	7.62080983	0.07489445
Department of Agriculture	1999	0.02933549	0.98983400	0.98978925	-31.37008295	0.06938897
Department of Agriculture	2000	0.03387432	0.93157412	0.93144574	13.61435452	0.08164827
Department of Housing and Urban Development	1998	0.29063913	0.31541408	0.31094455	0.46073703	0.04401300
Department of Housing and Urban Development	1999	0.27953366	0.30533976	0.30060668	0.43954680	0.03696099
Department of Housing and Urban Development	2000	0.24578831	0.30121375	0.29654215	0.43105277	0.04660825
Department of State	1998	0.23598546	0.75208484	0.75124683	3.03363794	0.13841855
Department of State	1999	0.21842075	0.66556653	0.66520132	1.99013134	0.11572496
Department of State	2000					
Agency for International Development	1998	0.04420411	0.52070688	0.52070688	1.08641915	0.00286944
Agency for International Development	1999	0.05203832	0.49065462	0.48739055	0.96330434	0.00327526
Agency for International Development	2000	0.05422233	0.48261342	0.48134794	0.93279076	0.00375414
National Aeronautical Space Administration	1998	0.34189403	0.16656238	0.16641000	0.19984984	0.02378473
National Aeronautical Space Administration	1999	0.29300784	0.14424010	0.14414831	0.16855207	0.02547168
National Aeronautical Space Administration	2000	0.29142554	0.12862508	0.12845585	0.14761164	0.02140708
Small Business Administration	1998	0.00276326	0.99846572	0.99846572	650.74620079	0.00069599
Small Business Administration	1999	0.00279353	0.97598331	0.97598331	40.63770251	0.05700479
Small Business Administration	2000	0.07085438	1.00376999	1.00376999	-266.25292482	0.05441397
Department of Education	1998	0.0062360	0.56853495	0.55937652	1.31768482	0.03394201
Department of Education	1999	0.00144922	0.70689994	0.70168763	2.41180420	0.03927928
Department of Education	2000	0.00319259	0.77647829	0.77220602	3.47383840	0.04356077
Department of the Interior	1998	0.15110324	0.20994298	0.12038235	0.26453690	0.04178365
Department of the Interior	1999	0.14959643	0.20856786	0.11930031	0.26353221	0.05140416
Department of the Interior	2000	0.22764382	0.18002578	0.12974204	0.21955053	0.04671075
Department of Transportation	1998	0.69758300	0.56640378	0.56000098	1.30629315	0.01432522
Department of Transportation	1999	0.81508441	0.38883814	0.37924432	0.63617492	0.01337079
Department of Transportation	2000	0.78474863	0.37485119	0.36615852	0.59961914	0.01122556
Environmental Protection Agency	1998	0.11154210	0.08831965	0.08831965	0.09687568	0.03816629
Environmental Protection Agency	1999	0.06464925	0.10718609	0.10707407	0.12005424	0.05012254
Environmental Protection Agency	2000	0.08025432	0.10803920	0.10768946	0.12112551	0.02119137
National Science Foundation	1998	0.04611712	0.05479813	0.05479813	0.05797505	0.02248984
National Science Foundation	1999	0.03390728	0.07269545	0.07269545	0.07839436	0.01600548
National Science Foundation	2000	0.03157889	0.07444890	0.07444890	0.08043737	0.01650079
Social Security Administration	1998	0.07362947	0.05832966	0.05825136	0.06194276	0.00426408
Social Security Administration	1999	0.08051212	0.05044253	0.04844339	0.05312214	0.00397128
Social Security Administration	2000	0.07838799	0.04479439	0.04308834	0.04689503	0.00380085

Ratio Type	Operating Performance	Operating Performance	Operating Performance	Operating Performance	Operating Performance
Ratio	Net Cost of Operations to Appropriations	Total Cost of Operations to Total Financing Ratio	Return on Fixed Assets	Costs Not Assigned to Programs to Program Costs	Unassigned Operations to Net Cost of Operations
Numerator	Net Cost of Operations	Total Cost of Operations Non-Exchange Financing Sources +	Net Results of Operations	Total Costs Not Assigned to Programs	Total Costs Not Assigned to Programs
Denominator	Appropriations Used	Earned Revenue	PP&E	Total Program Costs	Net Cost of Operations
Agency	Year				
Department of Defense	1998	1.01350971	0.99919330	0.00203004	0.00000000
Department of Defense	1999	1.28365505	1.22314229	-0.62729831	0.00000000
Department of Defense	2000	1.12350147	1.07473231	-0.23167266	0.00000000
Department of Energy	1998	1.24434443	1.53239377	-0.38487903	0.00000000
Department of Energy	1999	1.86487895	1.64416899	-0.79665964	0.81095022
Department of Energy	2000	1.31903272	1.20305969	-0.26967019	0.62102608
Department of Justice	1998	1.04530311	1.02748180	0.12216801	0.87604584
Department of Justice	1999	1.06762794	1.02339629	0.19113786	0.48037270
Department of Justice	2000			0.00156694	0.00189045
Department of Treasury	1998			0.00025983	0.00031503
Department of Treasury	1999	0.03337041	0.05647352	2.27173169	0.05118239
Department of Treasury	2000	0.03364947	0.05401848	1.99398044	0.03048720
Federal Emergency Management Agency	1998	0.03273377	0.05744293	-2.25770609	0.04654144
Federal Emergency Management Agency	1999	1.02186854	1.01173469	1.85909017	0.07596974
Federal Emergency Management Agency	2000	0.99707027	0.99575097	0.85264155	0.00000000
Nuclear Regulatory Commission	1998	0.82300242	0.87459073	23.52571449	0.00000000
Nuclear Regulatory Commission	1999	1.30181016	0.98717969	0.16835184	0.00000000
Nuclear Regulatory Commission	2000	1.29317226	0.99297542	0.08799151	0.00000000
Department of Commerce	1998	1.82581843	1.01096264	-0.13232463	0.00000000
Department of Commerce	1999	0.97043349	0.95022868	0.07362609	0.00059125
Department of Commerce	2000	0.97678108	0.96315169	0.06240249	0.00064813
Department of Health and Human Services	1998	1.01985010	1.00194542	-0.00437726	0.00051820
Department of Health and Human Services	1999	2.25646083	0.98282592	3.86773428	0.00000000
Department of Health and Human Services	2000	1.471116044	1.09592482	16.62019759	0.00000000
Department of Labor	1998	1.46699573	0.87572008	16.65542522	0.00000000
Department of Labor	1999	4.47967042	0.79953279	13.03563047	0.00000000
Department of Labor	2000	4.33020967	0.83221842	10.21546877	0.00166111
Department of Veterans Affairs	1998	4.30733036	0.80649662	11.49044401	0.00188037
Department of Veterans Affairs	1999	3.58683269	3.35744882	-9.17753957	0.00089195
Department of Veterans Affairs	2000	-1.15216264	-0.98150258	7.94699236	-0.00122255
General Services Administration	1998	2.35804694	3.52488642	-5.36535801	-0.00009319
General Services Administration	1999	-0.09223301	0.95403207	0.04008264	0.00000000
General Services Administration	2000	-0.84144427	0.91486382	0.08254282	0.00000000
Office of Personnel Management	1998	-0.99521531	0.93595138	0.03242277	0.00000000
Office of Personnel Management	1999	1.8002102	1.04975643	-356.26249224	0.00000000
Office of Personnel Management	2000	0.93634882	0.98199178	137.54529015	0.00000000
Department of Agriculture	1998	2.07867565	1.28990244	-2.882.50000000	0.00000000
Department of Agriculture	1999	1.21555238	1.16772049	-2.5962721	0.00015136
Department of Agriculture	2000	1.15102276	1.17370388	-2.82751323	0.00045716
Department of Housing and Urban Development	1998	0.86495522	0.88836622	1.98829649	0.00137556
Department of Housing and Urban Development	1999	0.92638488	0.99799561	-3.04166667	0.00826653
Department of Housing and Urban Development	2000	0.70986602	0.83887447	-205.55172414	0.01272638
Department of State	1998	0.94771375	0.88513255	-59.74074074	0.01001543
Department of State	1999	0.80454140	0.92981459	0.14722430	0.01053792
Department of State	2000	0.84072052	0.93387960	0.11348258	0.38478969
Agency for International Development	1998	1.02970142	0.99133552	1.96428571	-0.00045544
Agency for International Development	1999	1.01501129	1.00127788	-0.40032920	-0.00051286
Agency for International Development	2000	1.01008363	0.99789186	0.22419306	-0.00093515
National Aeronautical Space Administration	1998	1.00502089	0.99762313	0.00165554	-0.00235461
National Aeronautical Space Administration	1999	0.83763141	0.83869226	0.10040318	-0.16046263
National Aeronautical Space Administration	2000	0.82596945	0.82662528	0.09732349	-0.16999203
Small Business Administration	1998	0.78651031	2.20859423	-531.70699708	0.01076770
Small Business Administration	1999	0.42459933	0.36345033	20.49324324	0.02396819
Small Business Administration	2000	0.76571805	1.49991125	0.02642906	0.06129284
Department of Education	1998	1.05500554	1.04904932	0.03810293	0.03987799
Department of Education	1999	1.03671293	1.03224713	0.00501949	0.00556594
Department of Education	2000	0.87863326	0.98615661	406.04437643	0.00000000
Department of the Interior	1998	0.94065213	0.84967211	0.03789868	0.06175639
Department of the Interior	1999	-0.91837651	0.86454891	0.05712366	0.06963091
Department of the Interior	2000	1.24582902	0.99240579	0.08941254	-0.08160873
Department of Transportation	1998	4.07336030	1.03357719	-0.09865259	0.00458543
Department of Transportation	1999	6.03877467	0.73261300	1.04515237	0.00548447
Department of Transportation	2000	7.50698484	0.89616563	0.34355501	0.00521768
Environmental Protection Agency	1998	0.90584563	1.03578411	-0.86409029	0.00000000
Environmental Protection Agency	1999	0.88767043	1.03851778	-0.71851017	0.00000000
Environmental Protection Agency	2000	1.12903145	1.02478542	5.43240055	0.01834446
National Science Foundation	1998	1.01653400	0.98220298	0.65731636	0.00000000
National Science Foundation	1999	1.01687727	1.00387235	-0.13075657	0.00000000
National Science Foundation	2000	1.00893947	0.99619131	0.10178363	0.00000000
Social Security Administration	1998	13.46603095	0.80500856	324.51465798	0.00268896
Social Security Administration	1999	13.55340780	0.77015043	370.48235294	0.00253446
Social Security Administration	2000	13.23689245	0.74564446	446.89149560	0.00253372

Agency	Year	Ratio Type	Operating Performance	Operating Performance	Operating Performance	Assessing Stewardship	Assessing Stewardship
		Ratio	Return on Net Cost	Return on Appropriated Funds	Return on Net Worth	Fixed Assets to Total Assets	Fixed Assets to Entity Assets
		Numerator	Net Results of Operations	Net Results of Operations	Net Results of Operations	PP&E	PP&E
		Denominator	Net Cost of Operations	Appropriations Used	Average Net Position	Total Assets	Entity Assets
Department of Defense	1998		0.00091424	0.00092659	0.02125597	0.21349860	0.21403308
Department of Defense	1999		-0.19811435	-0.25430950	0.19770571	0.19923473	0.20012423
Department of Defense	2000		-0.07502126	-0.08428650	0.06633170	0.18244536	0.18374685
Department of Energy	1998		-0.36341138	-0.45220893	0.05935853	0.20259369	0.20259369
Department of Energy	1999		-0.45774714	-0.85364300	0.09491763	0.18923176	0.18923176
Department of Energy	2000		-0.21585713	-0.28472262	0.02771862	0.18385019	0.18385019
Department of Justice	1998		0.03505329	0.03664131	0.03524135	0.19757840	0.20895385
Department of Justice	1999		0.05327221	0.05687490	0.05252312	0.20254119	0.21206794
Department of Justice	2000						
Department of Treasury	1998		0.25374618	0.00846761	0.04083089	0.00025648	0.00926631
Department of Treasury	1999		0.49826079	0.01676621	0.05686939	0.00045877	0.01500542
Department of Treasury	2000		-0.50692097	-0.01659343	-0.05897443	0.00045532	0.01792771
Federal Emergency Management Agency	1998		0.01754980	0.01793359	0.00605064	0.00251118	0.00251118
Federal Emergency Management Agency	1999		0.00569472	0.00567803	0.00376553	0.00346383	0.00346383
Federal Emergency Management Agency	2000		0.21929258	0.18047832	0.10150050	0.00298531	0.00298531
Nuclear Regulatory Commission	1998		0.13592755	0.17695187	0.05143101	0.16753671	0.16756277
Nuclear Regulatory Commission	1999		0.06106904	0.07897278	0.02939210	0.17609871	0.17613225
Nuclear Regulatory Commission	2000		-0.11612647	-0.21202584	-0.05207440	0.18525218	0.18542797
Department of Commerce	1998		0.07096012	0.06886208	0.04456687	0.43853931	0.43853931
Department of Commerce	1999		0.05014734	0.04896297	0.03676008	0.43436847	0.44029299
Department of Commerce	2000		-0.00214234	-0.00218486	-0.00241158	0.38744846	0.39221779
Department of Health and Human Services	1998		0.01881240	0.04244945	0.03668944	0.00716586	0.00720516
Department of Health and Human Services	1999		0.08448394	0.12428943	0.14685243	0.00670756	0.00671017
Department of Health and Human Services	2000		0.08840124	0.12968425	0.13911620	0.00654433	0.00654433
Department of Labor	1998		0.26991624	1.20913578	0.11478749	0.00747057	0.00748543
Department of Labor	1999		0.21660482	0.93794430	0.08485878	0.00720337	0.00721980
Department of Labor	2000		0.25837806	1.11291260	0.09352178	0.00716188	0.00717944
Department of Veterans Affairs	1998		-0.71916815	-2.57953583	0.21555177	0.25780474	0.26470262
Department of Veterans Affairs	1999		-1.87116084	2.15588162	-0.18548972	0.24638186	0.25592719
Department of Veterans Affairs	2000		-0.57818470	-1.36338666	0.12404609	0.26308126	0.26336286
General Services Administration	1998		-15.31578947	1.41262136	0.04128245	0.72310757	0.72803851
General Services Administration	1999		-2.33768657	1.96703297	0.08348046	0.71090713	0.71435294
General Services Administration	2000		-2.44320769	2.43062201	0.03194165	0.70582935	0.70889512
Office of Personnel Management	1998		-0.15205149	-0.17942395	0.00681501	0.00002641	0.00002641
Office of Personnel Management	1999		0.06836882	0.06401706	-0.00247748	0.00002341	0.00002341
Office of Personnel Management	2000		-0.51878048	-1.07837636	0.04183477	0.00001811	0.00001811
Department of Agriculture	1998		-0.16661328	-0.20252700	-0.36215714	0.02984328	0.03002946
Department of Agriculture	1999		-0.16690612	-0.19211274	-2.05894818	0.03191651	0.03205699
Department of Agriculture	2000		0.14264200	0.12337894	4.48199330	0.04326753	0.04334871
Department of Housing and Urban Development	1998		-0.00231945	-0.00214870	-0.00099904	0.00021532	0.00021672
Department of Housing and Urban Development	1999		-0.22016620	-0.15628851	-0.07882835	0.00026884	0.00027067
Department of Housing and Urban Development	2000		-0.04941184	-0.04682828	-0.02158827	0.00025325	0.00025495
Department of State	1998		0.12152125	0.09776888	0.11925511	0.25263919	0.25349316
Department of State	1999		0.10451112	0.08786484	0.09014344	0.22380498	0.22384916
Department of State	2000						
Agency for International Development	1998		0.00834978	0.00859778	0.00443823	0.00154508	0.00154508
Agency for International Development	1999		-0.00182916	-0.00185662	-0.00123912	0.00148946	0.00149901
Agency for International Development	2000		0.00119813	0.00121022	0.00081701	0.00186549	0.00187005
National Aeronautical Space Administration	1998		0.00205314	0.00251571	0.00124951	0.71026861	0.71039846
National Aeronautical Space Administration	1999		0.20608313	0.17262170	0.08971554	0.73119729	0.73127572
National Aeronautical Space Administration	2000		0.22371693	0.18478335	0.08615368	0.73817025	0.73831361
Small Business Administration	1998		-0.55602626	-0.43732038	-1.35904869	0.00004311	0.00004311
Small Business Administration	1999		0.02944969	0.01250432	0.07348594	0.00004577	0.00004577
Small Business Administration	2000		-0.79338553	-0.60750962	-3.07826687	0.00000000	0.00000000
Department of Education	1998		0.05079867	0.05359288	0.04725860	0.00000000	0.00000000
Department of Education	1999		-0.03481456	-0.03609271	-0.03580785	0.00000000	0.00000000
Department of Education	2000		0.01622002	0.01425145	0.01843357	0.00001098	0.00001119
Department of the Interior	1998		0.07885330	0.07426759	0.01660443	0.34291189	0.38178428
Department of the Interior	1999		-0.10360920	0.09515226	0.02388112	0.33034687	0.36780750
Department of the Interior	2000		0.14817480	0.18460047	0.03681499	0.33426164	0.35475975
Department of Transportation	1998		-0.03322023	-0.13531797	-0.03441525	0.21044084	0.21354836
Department of Transportation	1999		0.37360348	2.25610723	0.42259313	0.19909654	0.20222189
Department of Transportation	2000		0.11817172	0.88711332	0.11175545	0.19130033	0.19396036
Environmental Protection Agency	1998		-0.03836945	-0.03475680	-0.01473755	0.01532081	0.01532081
Environmental Protection Agency	1999		-0.04197894	-0.03726347	-0.01776582	0.02220940	0.02221219
Environmental Protection Agency	2000		0.35300434	0.39855300	0.16450086	0.02698508	0.02699566
National Science Foundation	1998		0.01863206	0.01894012	0.01625406	0.02254443	0.02254443
National Science Foundation	1999		-0.00394128	-0.00400780	-0.00326771	0.02218917	0.02218917
National Science Foundation	2000		0.00391533	0.00395033	0.00305432	0.02635334	0.02635334
Social Security Administration	1998		0.24411257	3.28722737	0.15200248	0.00041024	0.00041134
Social Security Administration	1999		0.30091950	4.07848470	0.16407694	0.00038863	0.00038945
Social Security Administration	2000		0.34412987	4.55521014	0.16802850	0.00033131	0.00033191

	Ratio Type	Assessing Stewardship	Assessing Stewardship	Assessing Stewardship	Assessing Stewardship	Assessing Stewardship
	Ratio	Fixed Assets to Equity	Inventory to Assets	Inventory to Entity Assets	Depreciation to Total Cost	Capital Investment Ratio
	Numerator	PP&E	Inventory and Related Property	Inventory and Related Property	Depreciation Expense	Change in PP&E
	Denominator	Net Position	Total Assets	Entity Assets	Total Cost of Operations	Total Assets
Agency	Year					
Department of Defense	1998	-0.35323592	0.20658130	0.20709846	0.01400556	-1.10084523
Department of Defense	1999	-0.29836792	0.21404806	0.21500369	0.01308125	-0.01148850
Department of Defense	2000	-0.29149034	0.22548995	0.22709851	0.01092789	-0.01105402
Department of Energy	1998	-0.14993048	0.38106811	0.38106811	0.06506520	-0.00935362
Department of Energy	1999	-0.10380058	0.38419131	0.38419131	0.03883879	-0.01369555
Department of Energy	2000	-0.10149819	0.37452690	0.37452690	0.03669849	0.00054493
Department of Justice	1998	0.26857029	0.00427206	0.00447477	0.01280195	0.19757840
Department of Justice	1999	0.26287734	0.00476699	0.00499121	0.01153405	0.01355774
Department of Justice	2000					
Department of Treasury	1998	0.01847309	0.00006408	0.00231499	0.01118140	0.00001179
Department of Treasury	1999	0.02477074	0.00007318	0.00239364	0.02436430	0.00020660
Department of Treasury	2000	0.02624302	0.00010069	0.00396466	0.00833844	0.00002154
Federal Emergency Management Agency	1998	0.00329394	0.00043866	0.00043866	0.00058489	0.00035303
Federal Emergency Management Agency	1999	0.00499116	0.00045955	0.00045955	0.00076898	0.00058276
Federal Emergency Management Agency	2000	0.00401844	0.00045182	0.00045182	0.00207290	-0.00021384
Nuclear Regulatory Commission	1998	0.31354189	0.00000000	0.00000000	0.01089925	0.01543886
Nuclear Regulatory Commission	1999	0.34723342	0.00000000	0.00000000	0.01216456	0.00451915
Nuclear Regulatory Commission	2000	0.43528662	0.00000000	0.00000000	0.01279782	0.00611777
Department of Commerce	1998	0.57822057	0.01117165	0.01133352	0.06488651	0.24151735
Department of Commerce	1999	0.56938120	0.01116402	0.01131629	0.07936240	0.02275864
Department of Commerce	2000	0.53106627	0.00969889	0.00981828	0.05265124	0.00200734
Department of Health and Human Services	1998	0.00895917	0.00036976	0.00037180	0.02080647	0.00147053
Department of Health and Human Services	1999	0.00812569	0.00027611	0.00027621	-0.00133182	0.00050067
Department of Health and Human Services	2000	0.007770099	0.00020151	0.00020158	0.00294481	0.00071649
Department of Labor	1998	0.00622866	0.00000000	0.00000000	0.00175065	0.00076518
Department of Labor	1999	0.00788106	0.00000000	0.00000000	0.00107523	0.00045339
Department of Labor	2000	0.00786319	0.00000000	0.00000000	0.00116184	0.00047038
Department of Veterans Affairs	1998	-0.02120341	0.00194309	0.00199508	0.00550081	0.00617471
Department of Veterans Affairs	1999	-0.02570916	0.00155575	0.00161602	-0.01912038	0.00194469
Department of Veterans Affairs	2000	-0.02172892	0.00168350	0.00168530	0.00522427	-0.01073801
General Services Administration	1998	1.01128291	0.00981076	0.00987766	0.07989072	0.06503984
General Services Administration	1999	0.96928676	0.00861706	0.00865882	0.07882452	0.03090901
General Services Administration	2000	0.97033505	0.00851428	0.00855126	0.07863565	0.02198396
Office of Personnel Management	1998	-0.00001906	0.00000000	0.00000000	0.00000000	-0.00001538
Office of Personnel Management	1999	-0.00001803	0.00000000	0.00000000	0.00000000	-0.00000139
Office of Personnel Management	2000	-0.00001422	0.00000000	0.00000000	0.00000000	-0.00000392
Department of Agriculture	1998	0.25728869	0.00363835	0.00366104	0.00046260	-0.04888243
Department of Agriculture	1999	-1.01150656	0.00382492	0.00384175	0.00891744	0.00124408
Department of Agriculture	2000	0.63232703	0.00466997	0.00467873	0.02567715	0.01288461
Department of Housing and Urban Development	1998	0.00031452	0.00000000	0.00000000	0.00005503	0.00007985
Department of Housing and Urban Development	1999	0.00036701	0.00000000	0.00000000	0.00029000	0.00004635
Department of Housing and Urban Development	2000	0.00036242	0.00000000	0.00000000	0.00017296	-0.00001876
Department of State	1998	1.01905502	0.00005167	0.00005184	0.03261498	0.00200896
Department of State	1999	0.68660825	0.00002747	0.00002750	0.02844189	0.00916431
Department of State	2000					
Agency for International Development	1998	0.00322371	0.00148990	0.00148990	0.00090416	-0.00148990
Agency for International Development	1999	0.00292427	0.00095302	0.00095913	0.00091118	0.00002890
Agency for International Development	2000	0.00360590	0.00109547	0.00109815	0.00076747	0.00038457
National Aeronautical Space Administration	1998	0.85221567	0.07590719	0.07582105	0.13560635	-0.20693890
National Aeronautical Space Administration	1999	0.85444210	0.07023388	0.07027141	0.16943448	0.06574719
National Aeronautical Space Administration	2000	0.84713277	0.07785395	0.07766903	0.19097798	0.05771571
Small Business Administration	1998	0.02809978	0.00000000	0.00000000	0.00000000	-0.00008290
Small Business Administration	1999	0.00190565	0.00000000	0.00000000	0.00000000	0.00000334
Small Business Administration	2000	0.00000000	0.00000000	0.00000000	0.00000000	-0.00004591
Department of Education	1998	0.00000000	0.00000000	0.00000000	-0.00000027	0.00000000
Department of Education	1999	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Department of Education	2000	0.00004914	0.00000000	0.00000000	0.00000000	0.00001098
Department of the Interior	1998	0.43208326	0.00771691	0.00859170	0.03285856	0.00280508
Department of the Interior	1999	0.41740393	0.00761818	0.00847745	0.03678895	-0.01054431
Department of the Interior	2000	0.40764896	0.00756668	0.00803069	0.03546615	-0.00119253
Department of Transportation	1998	0.48533826	0.03335273	0.03384524	0.01147248	-0.19308931
Department of Transportation	1999	0.32574024	0.02852161	0.02896334	0.01972485	0.01777716
Department of Transportation	2000	0.30600767	0.02729286	0.02757237	0.02262087	0.01180774
Environmental Protection Agency	1998	0.01680503	0.00000415	0.00000415	0.00345145	0.00403472
Environmental Protection Agency	1999	0.02487573	0.00001318	0.00001318	0.00207784	0.00702382
Environmental Protection Agency	2000	0.03025366	0.00030129	0.00030141	0.00308814	0.00483759
National Science Foundation	1998	0.02385145	0.00000000	0.00000000	0.00189529	0.00358364
National Science Foundation	1999	0.02392868	0.00000000	0.00000000	0.00271804	0.00195167
National Science Foundation	2000	0.02847313	0.00000000	0.00000000	0.00287651	0.00647170
Social Security Administration	1998	0.00043565	0.00000000	0.00000000	0.00032093	0.00000802
Social Security Administration	1999	0.00040928	0.00000000	0.00000000	0.00040278	0.00003772
Social Security Administration	2000	0.00034685	0.00000000	0.00000000	0.00022161	0.00000097

Agency	Year	Ratio Type	Assessing Stewardship	Assessing Stewardship	Assessing Stewardship	Assessing Stewardship	Assessing Stewardship
		Ratio	Capital Investment Ratio II	Total Assets Maintenance	Entity Assets Maintenance	Receivables Management	Entity Receivables Management
		Numerator	Change in PP&E	Total Assets	Entity Assets	Total Receivables, Net	Accounts Receivable, Net (Assets for Use by Entity)
		Denominator	Entity Assets	Appropriations Used	Appropriations Used	Total Assets	Entity Assets
Agency	Year						
Department of Defense	1998		-1.10360113	2.13789985	2.13256112	0.01208499	0.01186502
Department of Defense	1999		-0.01153979	2.03480787	2.02576373	0.00634645	0.00568119
Department of Defense	2000		-0.01113288	1.99411596	1.97999142	0.00897566	0.00483877
Department of Energy	1998		-0.00935362	5.79947886	5.79947886	0.05128153	0.05128153
Department of Energy	1999		-0.01369555	5.66251593	5.66251593	0.05164214	0.05164214
Department of Energy	2000		0.00054493	5.74281650	5.74281650	0.09612603	0.09612603
Department of Justice	1998		0.20695385	1.51800802	1.44923905	0.01603770	0.01641080
Department of Justice	1999		0.01419544	1.46913127	1.40313327	0.02057973	0.02128710
Department of Justice	2000						
Department of Treasury	1998		0.00042600	14.53284230	0.40225123	0.00002668	0.00000000
Department of Treasury	1999		0.00675752	18.32800400	0.56035835	0.00012721	0.00000000
Department of Treasury	2000		0.00084819	16.14166192	0.40996238	0.00015357	0.00000000
Federal Emergency Management Agency	1998		0.00035303	3.84139832	3.84139832	0.01685205	0.01685205
Federal Emergency Management Agency	1999		0.00058276	1.92253712	1.92253712	0.00840126	0.00840126
Federal Emergency Management Agency	2000		-0.00021384	2.56976138	2.56976138	0.01188894	0.01188894
Nuclear Regulatory Commission	1998		0.01544226	6.27375165	6.27277591	0.12047096	0.12033414
Nuclear Regulatory Commission	1999		0.00542001	5.09659910	5.09562862	0.15766613	0.15750570
Nuclear Regulatory Commission	2000		0.00612358	8.64937591	8.64117639	0.19491738	0.19415344
Department of Commerce	1998		0.24501680	2.11381132	2.08362077	0.01569850	0.01587745
Department of Commerce	1999		0.02306905	1.80711125	1.78279502	0.01476999	0.01481064
Department of Commerce	2000		0.00203205	1.28827301	1.27260775	0.01388534	0.01372659
Department of Health and Human Services	1998		0.00147864	1.53164994	1.52325248	0.02240224	0.01701289
Department of Health and Human Services	1999		0.00050087	1.11489446	1.11445939	0.04035945	0.04036784
Department of Health and Human Services	2000		0.00071672	1.18977886	1.18938307	0.01988417	0.01984123
Department of Labor	1998		0.00076671	12.41622079	12.39157055	0.05949617	0.05809889
Department of Labor	1999		0.00045442	12.74627551	12.71726746	0.05620725	0.05578109
Department of Labor	2000		0.00047153	13.52375424	13.49067607	0.05569552	0.05478362
Department of Veterans Affairs	1998		0.00633992	1.09024574	1.06183504	0.02482836	0.02549267
Department of Veterans Affairs	1999		0.00202003	1.10106611	1.05999955	0.02681624	0.02785515
Department of Veterans Affairs	2000		-0.01074950	0.96589611	0.96486332	0.02798253	0.02801248
General Services Administration	1998		0.06548335	48.73786408	48.40776699	0.08924303	0.08975130
General Services Administration	1999		0.03105882	33.52119309	33.35949765	0.08073807	0.08108235
General Services Administration	2000		0.02207945	106.21052632	105.75119617	0.09415263	0.09442584
Office of Personnel Management	1998		-0.00001538	19.07282743	19.07282743	0.00037703	0.00037703
Office of Personnel Management	1999		-0.00000139	19.87967837	19.87967837	0.00037589	0.00037589
Office of Personnel Management	2000		-0.00000382	20.65548073	20.65548073	0.00051800	0.00051800
Department of Agriculture	1998		-0.04918738	2.61322380	2.59702226	0.00411219	0.00337663
Department of Agriculture	1999		0.00124955	2.12880613	2.11947730	0.01395949	0.01324000
Department of Agriculture	2000		0.01290878	1.43416062	1.43147471	0.01687136	0.01686559
Department of Housing and Urban Development	1998		0.00008037	3.28083240	3.25955142	0.00677355	0.00314250
Department of Housing and Urban Development	1999		0.00004667	2.82819014	2.80905063	0.00954853	0.00625350
Department of Housing and Urban Development	2000		-0.00001889	3.09513718	3.07458267	0.00934229	0.00605089
Department of State	1998		0.00201575	3.60916464	3.59700598	0.01600211	0.01605620
Department of State	1999		0.00917432	3.46260906	3.45883197	0.01380302	0.01381809
Department of State	2000						
Agency for International Development	1998		-0.00148990	2.83289042	2.83289042	0.02786668	0.02786668
Agency for International Development	1999		0.00002908	3.11368416	3.09385762	0.02648054	0.02033428
Agency for International Development	2000		0.00038551	2.89365865	2.88659831	0.02706302	0.02484194
National Aeronautical Space Administration	1998		-0.20697674	2.13942858	2.13903752	0.00526816	0.00508631
National Aeronautical Space Administration	1999		0.06575425	2.35132865	2.35107646	0.00408305	0.00397622
National Aeronautical Space Administration	2000		0.05772692	2.57210461	2.57160517	0.00365215	0.00345865
Small Business Administration	1998		-0.00008290	19.07668282	19.07668282	0.02514663	0.02514663
Small Business Administration	1999		0.00000334	13.33192967	13.33192967	0.02299219	0.02299219
Small Business Administration	2000		-0.00004591	19.42564488	19.42564488	0.02826618	0.02826618
Department of Education	1998		0.00000000	2.74456702	2.68752075	0.02094362	0.00016182
Department of Education	1999		0.00000000	3.07395544	3.02024521	0.01760645	0.00013615
Department of Education	2000		0.00001119	3.19559383	3.13566056	0.01944996	0.00070828
Department of the Interior	1998		0.00312306	5.71468999	5.13283352	0.02773259	0.01830330
Department of the Interior	1999		-0.01173362	5.04234893	4.53125745	0.02471435	0.01452917
Department of the Interior	2000		-0.00126566	6.17657645	5.81969221	0.03246448	0.02037152
Department of Transportation	1998		-0.19594061	6.51803928	6.42318981	0.00761962	0.00757678
Department of Transportation	1999		0.01805622	10.84217488	10.67460848	0.00706761	0.00688551
Department of Transportation	2000		0.01197192	13.49792762	13.31281334	0.00875855	0.00870351
Environmental Protection Agency	1998		0.00403472	2.62541999	2.62541999	0.04581085	0.04581085
Environmental Protection Agency	1999		0.00702470	2.33514291	2.33484995	0.04635032	0.04635614
Environmental Protection Agency	2000		0.00483949	2.71875806	2.71769242	0.04302144	0.04303831
National Science Foundation	1998		0.00358364	1.27811238	1.27811238	0.00021754	0.00021754
National Science Foundation	1999		0.00195167	1.38134110	1.38134110	0.00027050	0.00027050
National Science Foundation	2000		0.00647170	1.47272019	1.47272019	0.00091207	0.00091207
Social Security Administration	1998		0.00000804	24.69231531	24.63793843	0.00545066	0.00325565
Social Security Administration	1999		0.00003780	28.32627489	28.26676380	0.00520885	0.00311448
Social Security Administration	2000		0.00000097	30.76570814	30.71085670	0.00504938	0.00327233

Ratio Type Assessing Stewardship

Ratio Non Entity Asset Management

Numerator Non Entity Assets

Denominator Total Assets

Agency	Year	
Department of Defense	1998	0.00249718
Department of Defense	1999	0.00444472
Department of Defense	2000	0.00708311
Department of Energy	1998	0.00000000
Department of Energy	1999	0.00000000
Department of Energy	2000	0.00000000
Department of Justice	1998	0.04530211
Department of Justice	1999	0.04492315
Department of Justice	2000	
Department of Treasury	1998	0.97232123
Department of Treasury	1999	0.96942611
Department of Treasury	2000	0.97460222
Federal Emergency Management Agency	1998	0.00000000
Federal Emergency Management Agency	1999	0.00000000
Federal Emergency Management Agency	2000	0.00000000
Nuclear Regulatory Commission	1998	0.00015553
Nuclear Regulatory Commission	1999	0.00019042
Nuclear Regulatory Commission	2000	0.00094799
Department of Commerce	1998	0.01428252
Department of Commerce	1999	0.01345586
Department of Commerce	2000	0.01215989
Department of Health and Human Services	1998	0.00548262
Department of Health and Human Services	1999	0.00039023
Department of Health and Human Services	2000	0.00033265
Department of Labor	1998	0.00198532
Department of Labor	1999	0.00227581
Department of Labor	2000	0.00244593
Department of Veterans Affairs	1998	0.02605898
Department of Veterans Affairs	1999	0.03729709
Department of Veterans Affairs	2000	0.00106925
General Services Administration	1998	0.00677291
General Services Administration	1999	0.00482368
General Services Administration	2000	0.00432471
Office of Personnel Management	1998	0.00000000
Office of Personnel Management	1999	0.00000000
Office of Personnel Management	2000	0.00000000
Department of Agriculture	1998	0.00619983
Department of Agriculture	1999	0.00438219
Department of Agriculture	2000	0.00187281
Department of Housing and Urban Development	1998	0.00648646
Department of Housing and Urban Development	1999	0.00676741
Department of Housing and Urban Development	2000	0.00664090
Department of State	1998	0.00336883
Department of State	1999	0.00109082
Department of State	2000	
Agency for International Development	1998	0.00000000
Agency for International Development	1999	0.00636755
Agency for International Development	2000	0.00243993
National Aeronautical Space Administration	1998	0.00018279
National Aeronautical Space Administration	1999	0.00010726
National Aeronautical Space Administration	2000	0.00019418
Small Business Administration	1998	0.00000000
Small Business Administration	1999	0.00000000
Small Business Administration	2000	0.00000000
Department of Education	1998	0.02078516
Department of Education	1999	0.01747268
Department of Education	2000	0.01875497
Department of the Interior	1998	0.10181768
Department of the Interior	1999	0.10135980
Department of the Interior	2000	0.05778027
Department of Transportation	1998	0.01455184
Department of Transportation	1999	0.01545505
Department of Transportation	2000	0.01371427
Environmental Protection Agency	1998	0.00000000
Environmental Protection Agency	1999	0.00012546
Environmental Protection Agency	2000	0.00039196
National Science Foundation	1998	0.00000000
National Science Foundation	1999	0.00000000
National Science Foundation	2000	0.00000000
Social Security Administration	1998	0.00220218
Social Security Administration	1999	0.00210091
Social Security Administration	2000	0.00178288

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

1. Raaum, Ronell B., "Measuring and Reporting Performance in Government," *The Government Accountants Journal*, (Fall 1992).
2. U.S. General Accounting Office, GAO Manual For Guidance of Federal Agencies, 17 May 1979.
3. United States Constitution.
4. Kohler, Eric Louis and Howard W. Wright, *Accounting in the Federal Government*, (Prentice-Hall, Inc., Englewood Cliffs, NJ, 1956).
5. Tierney, Cornelius E., *Federal Accounting Handbook: Policies, Standards, Procedures, Practices*, (John Wiley & Sons, Inc., New York, NY, 2000).
6. American Institute of Certified Public Accountants, "Discussion Memorandum: Federal Financial Management – Issues and Solutions," (New York, NY, September 1989).
7. Public Law 101-576, 101st Congress, "Chief Financial Officers Act of 1990."
8. Brady, Richard T., "Framework for Financial Ratio Analysis of Audited Financial Reports," Thesis, Naval Postgraduate School, December, 1999.
9. Public Law 104-208, 104th Congress, "Federal Financial Management Improvement Act of 1996."
10. Federal Accounting Standards Advisory Board, FASAB Mission Statement, approved by the Board; Secretary of the Treasury; Director, Office of Management and Budget; and Comptroller General of the United States 1991.
11. Office of Management and Budget, Statement of Federal Financial Accounting Concepts Number 1, "Objectives of Federal Financial Reporting," September 1993.
12. Office of Management and Budget, Statement of Federal Financial Accounting Concepts Number 2, "Entity and Display," June 1995.
13. Office of Management and Budget, OMB Bulletin No. 97-01, "Form and Content of Agency Financial Statements," October 1996.
14. Comes, Wendy and Curtin Riley, "Federal Financial Statements: The Revolution Is Here!" *Journal of Accountancy*, (June 1999).

15. Siegel, Joel G. and Jae K. Shim, *Dictionary of Accounting Terms*, (Barron's Educational Series: Hauppauge, NY, 1987).
16. Gates, Sheldon, *101 Business Ratios*, (McLane Publications, Scottsdale, AZ, 1993).
17. Lev, Baruch, *Financial Statements Analysis: A New Approach*, (Prentice-Hall, Englewood Cliffs, NJ, 1974).
18. Bell, Eric T., *The Development of Mathematics*, (McGraw-Hill Book Company, New York, NY, 1945).
19. Smith, David Eugene, *History of Mathematics, Vol. II*, (Ginn and Company: Boston, MA, 1925).
20. Foulke, Roy A., *Practical Financial Statement Analysis*, 5th ed., (McGraw-Hill Book Company, New York, NY, 1961).
21. Sanzo, Richard, *Ratio Analysis for Small Business*, Small Business Management Series No. 20, (Washington, D.C.: Small Business Administration, 1977).
22. Brown, Isadore, *The Historical Development of the Use of Ratios in Financial Statement Analysis to 1933*, (Catholic University of America Press, Washington, D.C., 1955).
23. Foster, George, *Financial Statement Analysis*, (Prentice-Hall, Inc., Englewood Cliffs, NJ, 1978).
24. Paton, William Andrew, "Limitations of Financial and Operating Ratios," *The Accounting Journal*, 1928.
25. Bowden, Craig T., "Basic Dimensions of Financial Condition Within the Defense Industry," Thesis, Naval Postgraduate School, September 1998.
26. Moses, O. Douglas, "Basic Dimensions of Financial Condition Within the Defense Industry," Report, Naval Postgraduate School, November 1995.
27. Eskew, Robert K. and Daniel L. Jensen, *Financial Accounting*, 4th ed., (McGraw-Hill, Inc., 1992).
28. Pinches, G., K. Mingo, and J. Caruthers, "The Stability of Financial Patterns in Industrial Organizations," *The Journal of Finance*, 1973.

29. Pinches, G., A. Eurbank, K. Mingo, and J. Caruthers, "The Hierarchical Classification of Financial Ratios," *Journal of Business Research*, (October 1975).
30. White, Robert M., "The Primary Dimensions of Financial Condition for Firms Within the Defense Industry," Thesis, Naval Postgraduate School, December 1994.
31. Ketz, J., R. Doogar, and D. Jensen, *A Cross-Industry Analysis of Financial Ratios*, (Quorum, Glenview, IL, 1990).
32. Kenney, Shane P., "Financial Ratio Analysis of Audited Federal Financial Statements," Thesis, Naval Postgraduate School, June 2000.
33. U.S. General Accounting Office, Financial Reporting: Framework for Analyzing Federal Agency Financial Statements, March 1991.
34. Belchoff, Boris S., "Analysis of Changes in Federal Financial Statement Financial Ratios," Thesis, Naval Postgraduate School, June 2001.
35. Green, Samuel B., Neil J. Salkind and Theresa M. Akey, *Using SPSS For Windows: Analyzing and Understanding Data*, 2nd ed., (Prentice-Hall, Inc., Englewood Cliffs, NJ, 2000).

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center2
8725 John J. Kingman Road, Suite 0944
Ft. Belvoir, VA 22060-6218

2. Dudley Knox Library2
Naval Postgraduate School
411 Dyer Road
Monterey, CA 93943-5101

3. Professor O. Douglas Moses, Code SM/MO1
Naval Postgraduate School
Monterey, CA 93943

4. Professor Kenneth J. Euske, Code SM/EU1
Naval Postgraduate School
Monterey, CA 93943

5. COL John B. Murphy, USA(Ret)1
11707 Basswood Drive
Laurel, MD 20708

6. CAPT Gerald A. Nelson, USN(Ret)1
12320 Manvel Lane
Bowie, MD 20715

7. LCDR Mark S. Murphy, SC, USN2
13111 Martha's Choice Circle
Bowie, MD 20720